POST-OCCUPANCY EVALUATION OF FOUNTAIN HOUSE: A STUDY ON AN ALTERNATIVE HEALTHCARE FACILITY

A Thesis

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by

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Abstract

This thesis describes a post-occupancy evaluation of the facilities of Fountain House, an alternative service program for individuals with mental and behavioral health diagnoses. The post-occupancy evaluation investigated the ways that spatial design of this community-based mental health facility affected perceived behavioral and psychological outcomes among providers and consumers of care. Based on the primary goals and objectives for design and construction of all Clubhouses (Clubhouse International, 2016), this project tested whether the physical environment of Fountain House supports or inhibits: sense of dignity and respect for members and staff, a non-institutional image, and social interaction among members and staff. The researcher evaluated three units – one originally designed and built in 1965 (Communications Unit), and two units that were modified and re-purposed at the turn of the twenty first century (Wellness Center and Horticulture Unit). The researcher's methodological processes included review of the design documents, cross-sectional analysis of survey data (n=56) and behavioral observation. The Practitioner-focused Facility Evaluation (PFE) Survey was utilized to examine the specified design intentions. Data analysis in this research suggested that the physical spaces of the units studied in this research were perceived as compatible with the initial goals and objectives of design by staff and members. The findings of the research underscored the importance of providing views to the outside in creating an attractive, de-institutionalized environment that is conducive to respecting an individual's dignity in the context of a dense urban facility.

Keywords: post-occupancy evaluation, mental health outpatient clinic, design

Biographical Sketch

Kimia Erfani is originally from Iran, where she graduated from Tehran University of Art with a Bachelor of Architecture in 2011. She received her Master of Architecture (M.ARCH) from University of Illinois at Urbana-Champaign in 2015. During summer of 2014, she served as an Architectural Intern at Northwestern Memorial Hospital campus in Chicago. Her internship allowed her to be a part of an interdisciplinary team, where she experienced incorporation of research evidence in design, along with insights from clinicians, physicians and staff in planning and design of healthcare facilities.

In pursuing her long-term career goal and to conduct research with an emphasis on human behavior, health and architectural design, she started her post-professional degree in Environmental Psychology at the department of Design and Environmental Analysis at Cornell University in Fall 2015. During her studies, she was actively involved in design activities at Cornell Institute for Healthy Futures.

She will be pursuing a PhD degree, beginning Fall 2017, at University of Michigan's Taubman College of Architecture and Urban Planning. She will continue her scholarly interests in the environmental design research that addresses the myriad of physical and psychological needs of individuals, with the aim of creating responsive environments.

Dedicated to Mom and Dad, Maryam Habibi and Mohsen Erfani. Thank you for your endless love, and support.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

In recent years we have witnessed an increase in construction of mental and behavioral health facilities in the United States, however, limited environmental design research exists that provides evidence-based strategies for design and construction of this type of facility. The research endeavor described in this paper is a systematic evaluation of Fountain House –a community-based behavioral health setting – and explores and highlights a promising but, as of yet, rarely studied alternative to the construction of large inpatient mental health hospitals.

Hawthorne, Green, Folsom, and Lohr (2009) refer to the increasing financial pressures in the public behavioral health sector and emphasize the importance of evaluating innovative and affordable alternative programs to hospital-based acute mental and behavioral health care. The Community Mental Health Act of 1963 advocated providing behavioral health services in community mental health centers instead of inpatient psychiatric facilities throughout the United States (Yeager, Cutler, Svendsen, & Sills, 2013). As Doyle, Lanoil, and Dudek (2013) argue, adequate delivery of effective services is contingent upon the introduction of a new organizational structure to replace the obsolete state mental hospital system. While Doyle, Lanoil, and Dudek (2013) identified community support programs namely, continuing education, housing and employment as keys to recovery, limited evidence-based research exists on the design of spaces that accommodate these programs. The research described in this paper addresses the spatial design of a community-based mental health facility and evaluates its impact on perceived behavioral/psychological outcomes – sense of dignity and respect, deinstitutionalization, and social interaction – for consumers and providers of care.

1.2 Background

Located on West 47th Street in New York City, Fountain House was chosen as the location for this study because it provides a unique opportunity for spatial evaluation of a community-based mental health prototype. Called a "club house" rather than a psychiatric facility, it was the first of its kind, when established in New York City in 1948, and has received numerous awards including national recognition as a robust and replicable model from the U.S. Substance Abuse and Mental Health Services Administration in 2011 (citation). Fountain House is on the National Registry of Evidence-based Programs and Practices (Doyle, Lanoil, & Dudek, 2013).

Fountain House follows Clubhouse International's non-medical and community-based practice in treatment of mental health. According to Clubhouse International manifesto, *"clubhouses are community-based centers that offer members opportunities for friendship, employment, housing, education, and access to medical and psychiatric services through a single caring and safe environment, so members can achieve a sense of belonging and become productive members of society"* (Clubhouse International, 2016).

Upon leaving a mental health hospital many patients do not succeed in a constructive reentry into society. Fountain House attempts to provide a link between the hospital and society at large by providing transitional rehabilitation services and offers assistance for education, housing, wellness and other opportunities that support living a successful life in society (Doyle, Lanoil, & Dudek, 2013).

CHAPTER 2: LITERATURE REVIEW

2.1 Literature Review

In this literature review evidence on the perceived psychological outcomes that compose the main evaluated dependent variables in this research will be reviewed. These dependent variables include social interaction, deinstitutionalization and attractiveness, and sense of dignity and respect. These variables were identified during initial interviews with facility administrators as the prior design goals of Fountain House. Additionally, literature on the effects of lighting and access to gardens in healthcare environments will be addressed. Based upon Ulrich, Bogren, and Lundin's (2012) theory, this evidence-based "bundle" of environmental features is investigated as a potential mediator and underlying mechanism in the creation of a therapeutic environment. Finally, a review of studies that address post-occupancy evaluation (POE) methodologies in mental and behavioral health settings are presented. As the primary method associated with this research, background regarding previous mental health POEs is useful to an understanding of the appropriateness of this method.

2.1.1 Dependent variables

2.1.1.1 Social behavior in physical setting of mental and behavioral health facilities

Prior research indicates that the environment in mental health settings affects attitudes and perceptions and plays a role in modifying social behavior (Shepley, 1995; Whitehead, Polsky, Crookshank, & Fik, 1984). In evaluating design of mental health facilities, Whitehead et al. (1984) discussed the therapeutic potential of architectural features and drew upon a

"psychoenvironmental model." This model was premised upon the notion that there is a relationship between the psychotherapeutic environment and the physical milieu. Also, the power of architectural features as "social organizers" was referred to as driving concepts behind architectural solutions that could motivate social interaction in the therapeutic environment (Whitehead et al., 1984). Halpern (2014) also described the interrelated channels through which planned environment influences mental health and identified built environment as a possible source of support and influence in social networks. In a case study of a psychiatric hospital in the Chaim Sheba Medical Center in Israel, Gross, Sasson, Zarhy, and Zohar (1998) discussed the benefits of psycho-environmental approach to psychiatric facility design. Providing opportunities for physical retreat when patients felt threatened and for shaping beneficial social relationships were emphasized as components of the psycho-environmental model (Gross et al., 1998). The latter was achieved through designing a variety of spaces that supported social interaction, namely, a well-lit and ventilated dining room, a spacious day room and a living room furnished with residential furniture instead of widely used institutional pieces (Gross et al., 1998). The porches that continued to the landscape surrounding the facility, provided opportunities for access to nature, fresh air and daylight (Gross et al., 1998). Gross et al. (1998) believed that the outcome of medical care is highly contingent on the quality of space, especially in psychiatric facilities where effective containment and reduction of sever psychopathology is a critical goal of clinicians, hospital designers and administrators. In that pursuit, following a psycho-environmental model in mental and behavioral health design results in a planned built environment that positively affects both patients and staff.

Holahan and Saegert (1973) conducted a randomized controlled study in an attempt to demonstrate the importance of including physical design in the therapeutic framework in

psychiatric care. The researchers reported significantly more socializing and less isolated passive behavior in a remodeled ward of an inpatient psychiatric hospital than the control ward. In the newly remodeled ward, the dull and dark color scheme and old and worn furniture of the pre-existing space were replaced with bright colors and new furniture (Holahan & Saegert, 1973). The researchers speculated that unattractive inpatient psychiatric setting and inappropriate situational props might reduce patients' motivation towards social interaction or fail to support social participation even when motivation is high.

With regard to potential long-term impacts of the design of inpatient psychiatric settings, Holahan and Saegert (1973) speculated that similarities between hospital and community environment seem responsible for encouraging adaptive behavior and generalization of such behavior to post-treatment settings. As a result, designing for similarity between hospital and community is an imperative task for designers of mental and behavioral health facilities.

2.1.1.2 De-institutionalization and attractiveness of the physical environment in mental and behavioral health facilities

Several studies on the evaluation of psychiatric facilities have specifically focused on deinstitutionalization and shifting of the environment of care from inpatient psychiatric hospital to the community. Hobbs, Newton, Tennant, Rosen, and Tribe (2002) conducted a six-year clinical, ethnographic and economic study of psychiatric patients after transferring to the community following the closure of an inpatient psychiatric hospital. The researchers reported significant results with regard to clinical stability and improved quality of life. One approach to deinstitutionalization identified by Wilson, Soth and Robak (1992) is reducing number of patients in living units. Smaller-sized groups of patients demonstrate a structure similar to homes

(Wilson et al., 1992). The researchers reported reductions in vandalism, and other negative behaviors, while feelings of belonging and security were increased. Another approach to achieve deinstitutionalization, as described by Carr (2011), was to utilize varied and cheerful colors and textures, while choosing materials in support of a therapeutic environment.

2.1.1.3 Attractiveness of the physical environment in mental and behavioral health facilities

Physical attractiveness has been discussed in a number of studies in addition to comfort and convenience of physical features. In a recent study by Shepley et al., (2017) that resulted in development of the Psychiatric Staff Environmental Design (PSED) research tool, psychiatric nurses identified attractiveness and aesthetic, deinstitutionalized setting as the third most important environmental quality in mental and behavioral health settings. Davidson, Tebes, Rakfeldt, and Sledge (1996) conducted a randomized controlled experiment to compare clinical effectiveness of a conventional psychiatric inpatient hospital with an acute day hospital and crisis respite program (DHRP). The researchers described the physical environment of the DHRP program to be more attractive, homelike and inviting. Respondents rated the day hospital-crisis program as significantly more attractive (cleanliness, condition and aesthetic appeal were categories that defined physical attractiveness), and providing a more stimulating and diverse environment (Davidson et al., 1996). In another study by Timko (1996), the researcher developed an instrument to assess architectural features of psychiatric and substance abuse treatment settings named Physical and Architectural Characteristics Inventory (PACI). The instrument was intended for both inpatient-based and community-based programs (Timko, 1996). Features of the physical environment relative to attractiveness, convenience and spatial comfort are included in

measuring the “physical amenities” category of the PACI instrument. In applying the PACI instrument in psychiatric environments, the researcher reported facilities that supported more socio-recreational aids and physical amenities were rated as more attractive. Sheltered seating and outdoor entrances, proper lighting for varied activities, decorated hallways, presence of recreational sources indoors and outdoors, ADA accessible spaces and adequate office spaces for staff have been mentioned as plausible features of an appealing environment (Timko, 1996).

2.1.1.4 Promoting sense of dignity and respect in mental and behavioral health facilities

Community support systems of care promote integration and involvement of patients into society. Providing a multitude of spaces and activities that a patient can voluntarily choose from can be critical in respecting individual’s dignity and facilitating connection and integration into society. In concert with these goals spaces in psychiatric environments should promote safety and a sense of control, while also conveying respect and dignity towards patients. Davidson et al. (1996) conducted a randomized controlled experiment that compared clinical effectiveness of a conventional psychiatric inpatient hospital with an acute day hospital and crisis respite program (DHRP). In this study the community-based DHRP program followed principles of community support systems that included promoting patients’ involvement and activities in the community, treatment in a less restrictive environment, presenting patients with opportunities for self-determination, respect and raising their dignity. These principles were embodied via an attractive, stimulating, comfortable and cohesive physical environment (Davidson, et al., 1996). With regard to sense of control and autonomy in inpatient settings, Middelboe, Schjødt, Byrsting, and

Gjerris (2001) reported that psychiatric patients subject to coercive measures perceived less practical orientation and diminished sense of autonomy.

2.1.2 Design Features

2.1.2.1 Daylight

Ulrich et al. (2012) suggested that high daylight exposure in interior spaces of psychiatric facilities is among the "bundled" features that can mitigate aggression in these settings. Rashid and Zimring (2008), in offering a conceptual framework that linked environment and the experience of stress, identified lighting conditions as an indoor environment feature that can contribute to alleviating stress. This framework suggested that if patients' physiological and psychological needs for light along with his/her social and psychosocial needs for control and respect were impeded, negative outcomes resulted (Rashid & Zimring, 2008). Turlington (2004) referred to maximizing daylight as one of the main goals in construction of a Planetree psychiatric unit.

In a study by Henriksen, et al. (2016), researchers demonstrated that blue-blocking (BB) glasses can be used as potential add-on treatment for persons with bipolar disorder. In this study, the researchers posited that changes in light conditions evoke bipolar episodes, and through blocking blue light to enter the eyes, they are capable of creating virtual darkness condition in the brain (Henriksen, et al., 2016). This state of virtual darkness helped patients with bipolar disorder to effectively synchronize their circadian rhythms and reduced their manic symptoms (Henriksen, et al., 2016).

These studies reinforce the idea that incorporation of daylight is imperative in therapeutic settings of psychiatric environments. In addition, certain spectrums of light have been identified as critical environmental factors that can contribute to or prevent episodes of mental illnesses.

2.1.2.2 Accessible Garden

Using gardens in healthcare settings is another factor in the "bundled" features conducive to reducing stress, improved emotional health and increased satisfaction with quality of care (Ulrich et al., 2012). It appears that few studies have investigated the influence of access to gardens in mental and behavioral health settings. However, the available literature in general healthcare environments can assist in conceptualizing a framework that suggests benefits of using gardens for this type of patient population. Gardens in hospitals mitigate stress through providing nature views, as well as other mechanisms such as increased exposure to daylight, and increased sense of control by providing an attractive alternative to the familiar institutional hospital spaces (Marcus & Barnes, 1995; Ulrich et al., 2012). Marcus and Barnes (1999) also discussed that various seating choices in gardens provide patients with alternatives for socialization or seeking privacy.

2.1.3 Post-occupancy evaluation studies in mental and behavioral health settings

"Post-occupancy evaluation (POE) is the process of evaluating buildings in a systematic and rigorous manner after they have been built and occupied for some time" (Preiser, Rabinowitz & White, 2015). Several studies published in systematic evaluation of design of psychiatric facilities – summarized in Table 2-1 – corroborate the fact that physical environment can positively impact treatment processes and outcomes, and emphasize the interrelationships

between physical environment and human behavior (Vaaler, Morken & Linaker, 2005). A POE study by Rivlin and Wolfe (1979) utilized interviews and behavioral observation measures to evaluate a range of physical spaces in eight 24-bed residential facility for children. The researchers used the primary design intentions as the factors to evaluate regarding the influence of spaces on treatment outcomes (Rivlin & Wolfe, 1979). The authors shed light on the importance of coordination between environmental changes and organizational policies, as health facilities are susceptible to following old and institutional treatment processes regardless of upgrading the physical environment (Rivlin & Wolfe, 1979). Chrysikou (2013) also emphasized the importance of agreement between the organizational and physical milieu specifically with regard to enhancing accessibility – outdoor access, accessibility to bathrooms and vertical circulation – in facilities for the mentally ill.

In another study, Devlin (1992) conducted a pre- and post-occupancy evaluation in four wards of an inpatient psychiatric facility before and after renovation. The methods included gathering behavioral mapping data for both staff and patients along with a survey of environmental design features by staff. The Environmental Design Survey was developed by the researcher for rating fifteen design features of the environment including: dorm privacy, bedroom privacy, bathroom privacy, ward color, day hall furniture, variety in type of activities in day hall, way-finding cues, plants, temperature control, air quality, lighting, safety considerations, time and place orientation cues, and socialization areas. A five-point Likert scale was utilized in rating each variable. Additional questions focused on ward stimulation and general staff morale, rated on a five-point Likert scale (Devlin, 1992). Concurrent with distribution of the survey, behavioral mapping data were collected on wards, in the corridor areas, day hall and sleeping dorm. Categories that the researcher defined in her behavioral

mapping included sitting, standing, sleeping, lying down, walking, eating, smoking, talking to patients, talking to staff, watching television, playing cards, charting, writing, and active working (Devlin, 1992). Peterson et al. (1977) as cited in Devlin (1992), generated the same categories from behavior of geriatric psychiatric patients. The author concluded that staff ratings of the environmental design features were higher in the renovated facility compared to the old one (Devlin, 1992).

Shepley (1995) conducted a pre and post-occupancy evaluation of children's psychiatric facility before and after renovation, and utilized questionnaires, interviews, children's drawings and the hospital's behavioral incident reports as main sources of data (Shepley et al., 2013). In the new facility, private rooms were incorporated in the design, corridors were eliminated, and visual access to outdoors was highlighted throughout the space. The questionnaires addressed issues such as human factors, building factors, accessibility, building image and access to support functions (Shepley, 1995). Issues specific to room design, efficiency of architectural plan, maintenance, functionality, and influences of color, light, temperature and sound were addressed in the questionnaire (Shepley, 1995). The findings of the research demonstrated that number of negative incidents, such as aggressive acts toward self, peer, or staff; theft, damage to the property, injuries and suicide attempts, significantly dropped immediately after moving into the new facility. However, the number of aggressive incidents in the semi-private rooms of the new facility increased compared to the old dormitories (Shepley, 1995).

Corey et al. (1986) in a before and after analysis of a renovated psychiatric ward, utilized the Ward Atmosphere Scale (WAS) and surveyed patients and staff perceptions of the ward environment before and after renovation. The results from the study corroborated the prediction

that planned environmental alterations positively affected both staff and patients' perception of the psychosocial milieu (Corey et al., 1986).

Table 2-1: Summary of methodologies used in post-occupancy evaluation studies of mental and behavioral health studies

Author(s)	Behavioral Mapping	Questionnaire	Interview
Rivlin & Wolfe, 1979	Yes	N/A	Yes
Corey et al., 1986	N/A	Yes	N/A
Devlin, 1992	Yes	Yes	N/A
Shepley, 1995	N/A	Yes	Yes

CHAPTER 3: METHODOLOGY

3.1 Methodology

In conducting this post-occupancy evaluation project, the researcher utilized three primary methods: design document review, survey questionnaire, and behavioral observation. The four primary objectives drawn from the design documents and staff interviews were: attractiveness, non-institutional/ homelike environment, physical environment that promotes a sense of respect and dignity, and facilitating staff and member social interaction.

3.1.1 Design Documents Review

The researcher examined the Clubhouse International website to understand the spatial requirements for building clubhouses, and "*Fountain House – Creating Community in Mental Health Practice,*" a book authored by Alan Doyle, Julius Lanoil, and Kenneth J. Dudek. Subsequently she met with staff and toured Fountain House and documented the interior spaces through photography. Analysis of these documents helped her to recognize the most prominent spatial requirements for building clubhouses that subsequently allowed her to form the four design objectives in this post-occupancy effort. These objectives were used to structure questions for the survey given to staff and members of Fountain House.

Fountain House is a 6-story building that encompasses seven different functional entities: the Culinary Unit on the basement level; the Welcome Center and Horticulture Unit on the first floor; external affairs, employment and training, executive offices and library on the second floor; the Education Unit and Research Unit on the third floor; the Communications Unit on the fourth floor; and the Wellness Unit on the fifth and sixth level. Architectural plans of the building

are included in this document in Appendix 1. The satellite view of the site plan obtained on February 12th, 2017 from Google Maps is shown in Figure 3-1.

Figure 3-1: Satellite view of Fountain House

The main accessible entrance to the building is located on West 47th street. (See Figure 3-2.) Reception Desk and Living Room are parts of the Welcome Center on the first level of the building. (See Figure 3-3).

Figure 3-2: Main entrance to the Fountain House. Photo retrieved on February 12th, 2017 from http://www.huffingtonpost.com/jim-luce/fountain-house-symposium_b_3228480.html

Figure 3-3: Living room (First floor)

In this research, the researcher focused on evaluating three units of Fountain House: the Horticulture Unit, the Communications Unit, and the Wellness Unit.

3.1.1.1 Horticulture Unit

The Horticulture Unit was added to the units of Fountain House around year 2001. This unit is currently located on the first level of the building and encompasses a large open area in which activities related to operation and maintenance of this unit is discussed and completed according to the work-ordered day schedules. Four main activities comprise the work-ordered day for the Horticulture Unit: Plants & Patio; Beautification; Maintenance; and Programming. Individuals from both staff and members groups volunteer to complete a task in any of these four categories. Other spaces in Horticulture Unit include the Hydroponic room and Patio (see Figures 3-4 and 3-5).

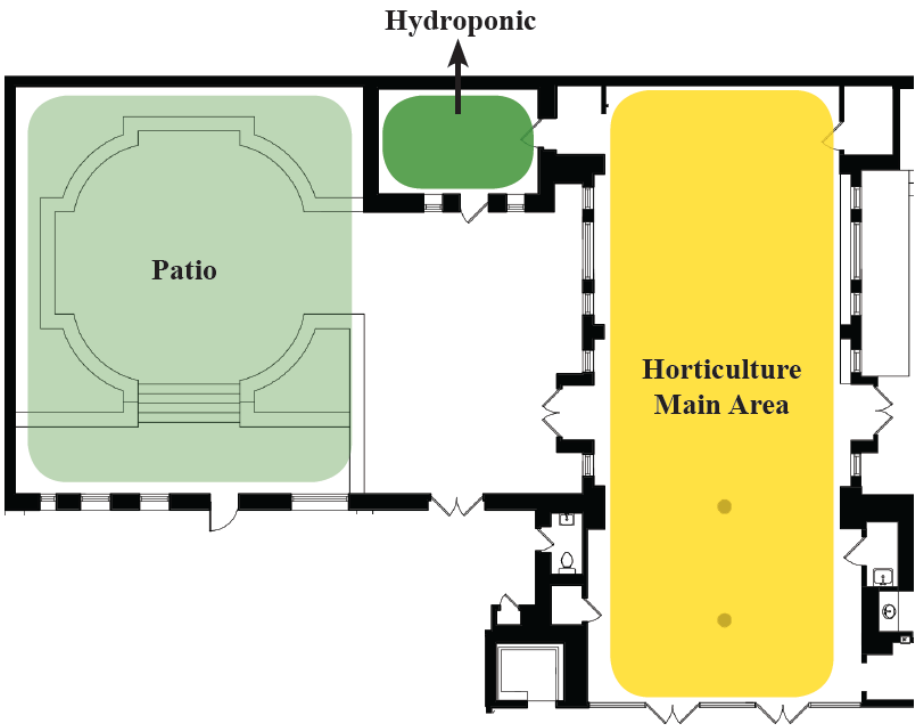

Figure 3-4: Spaces in the Horticulture Unit – First floor

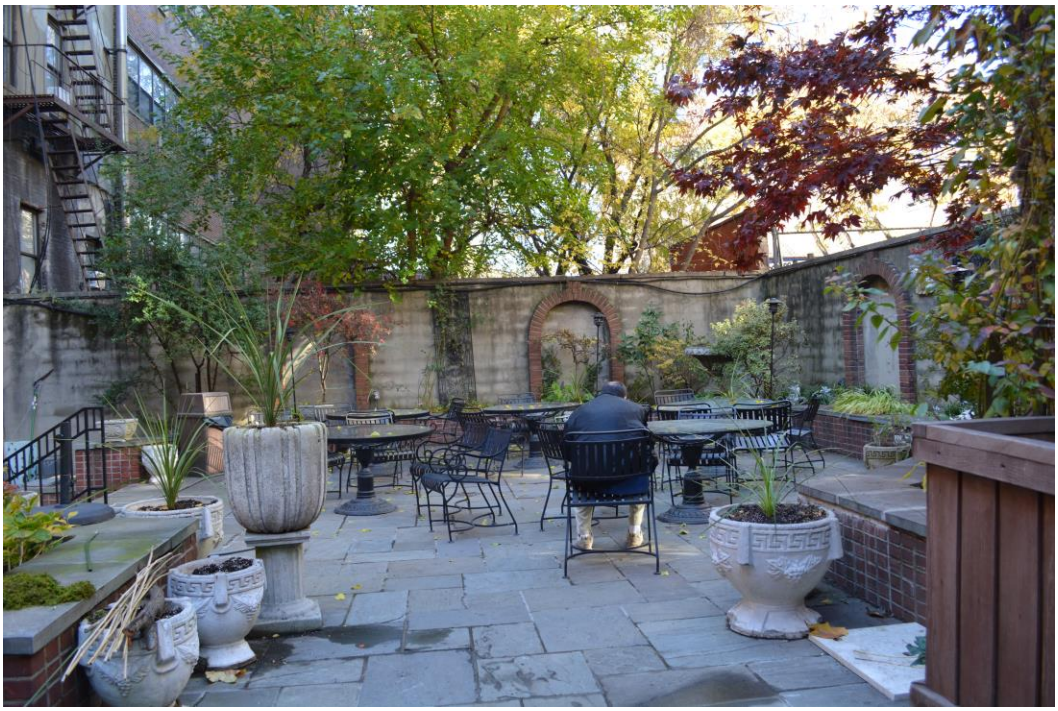

Figure 3-5: Patio – First floor

3.1.1.2 Communications Unit

Communications continues to serve its designated function established in the mid-twentieth century. This unit is located on the fourth floor of the building and includes a large open area in which activities related to operation and maintenance of the unit is discussed and completed according to the work-ordered day schedules. Four main activities comprise the work-ordered day for the Communications Unit: Newspaper, media and publications; mail and print and administrative tasks; reception; and clean-up. These categories are discussed daily and members and staff of the unit voluntarily complete them. Audio/Visual Room and Copy Center are two spaces that were added to the Communications Unit in 2016. (See Figure 3-6).

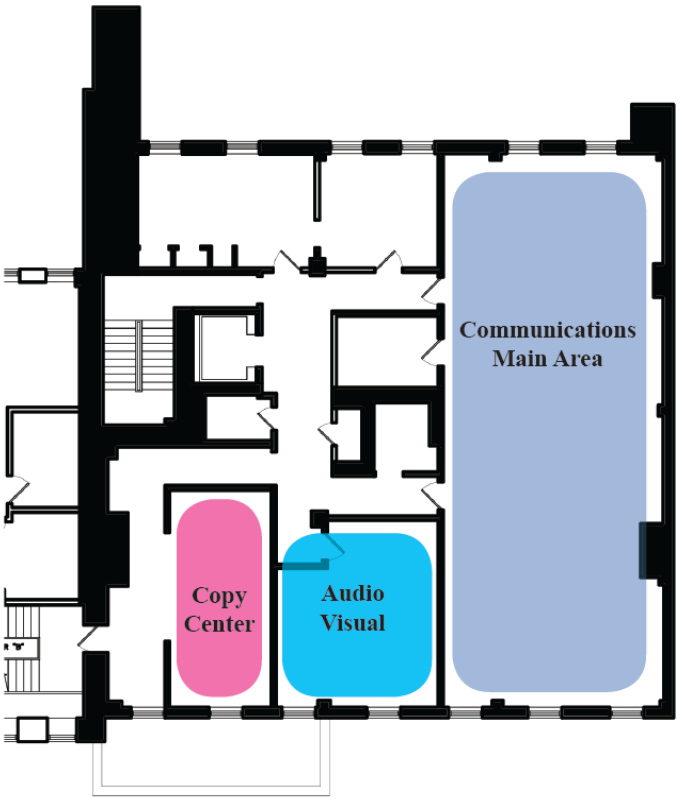

Figure 3-6: Spaces in the Communications Unit – Fourth floor

3.1.1.3 Wellness Unit

The Wellness Unit was also added to Fountain House approximately 15 years ago. The roof on the fifth floor – previously designated as the smoking area – was redesigned to accommodate the Wellness Unit. The unit encompasses a kitchen, showers and locker rooms, gym, yoga/ stretching studio and an open multi-purpose room in which activities related to operation and maintenance of the unit are discussed and completed according to the work-ordered day schedules. Three main activities comprise the work-ordered day for the Wellness Unit: Kitchen, Fitness, and Programming. Individuals from both staff and members groups volunteer to complete a task in any of these three categories. Location of this unit on fifth and sixth levels has allowed for abundant entry of natural light into the space and provides for spectacular views of NYC skyline (See Figures 3-7, 3-8, 3-9 and 3-10).

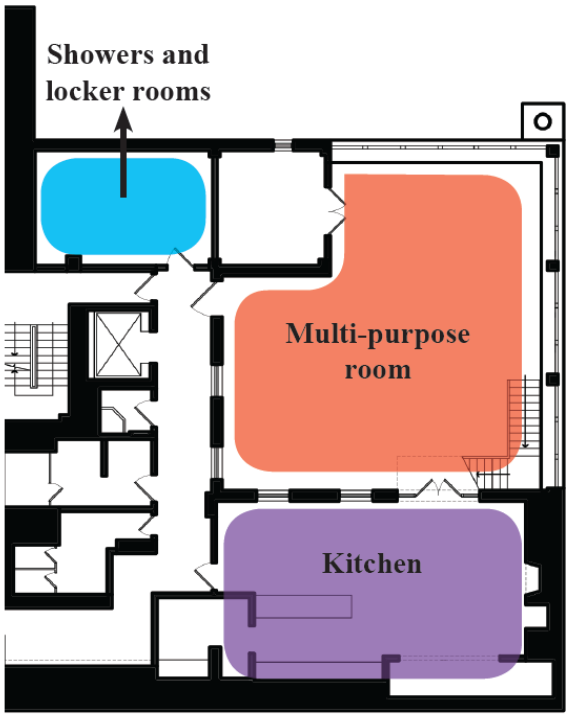

Figure 3-7: Wellness Unit – Fifth floor

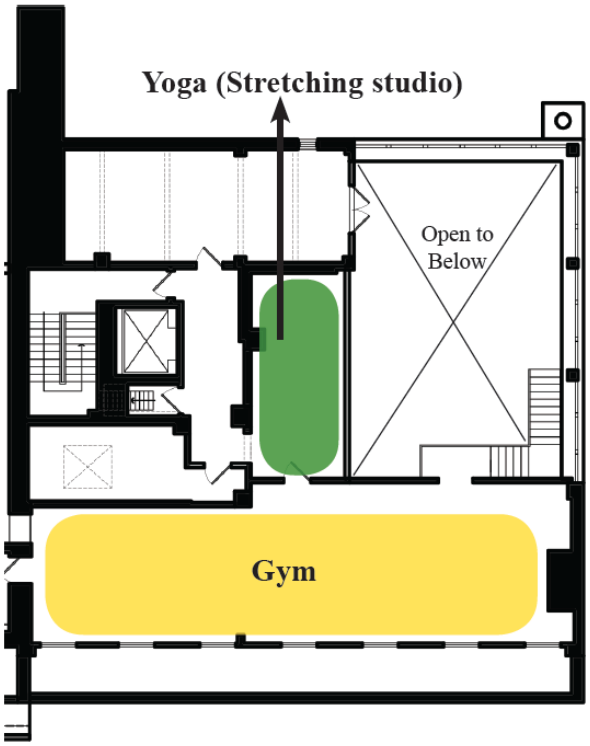

Figure 3-8: Wellness Unit – Sixth floor

Figure 3-9: Wellness Unit – Multi-purpose room – Fifth floor

Figure 3-10: Wellness Unit – Gym – Sixth floor

3.1.2 Survey questionnaire

3.1.2.1 Participants

The subjects of the survey were both staff and members of Fountain House. The researcher distributed the surveys in all seven units of Fountain House on January 10, 11, 17 and 18 in 2017. There were approximately 100 staff and members at Fountain House on each day that the paper surveys were distributed.

3.1.2.2 Procedure

To understand members and staff perceptions, survey questionnaires (PFE) were utilized together with behavioral observation (Zeisel, 2006). The researcher developed a Practitioner-focused facility evaluation (PFE) survey (Shepley, 2011) and used it as a tool to examine four design objectives. The objectives were determined based on literature relative to the construction of Fountain House (1962 to 1965) as well as The International Standards for Clubhouse Programs' requirements. The survey consisted of three main parts. The first section asked about basic demographic information of the participants, and asked them to rate the importance of four design objectives in the physical environment of Fountain House building. In the second part, participants marked the degree to which they agreed about the current presence of each design objective in the spaces and sub-spaces of each of the three studied units – Wellness Unit, Horticulture Unit and Communications Unit. The third section of the survey asked participants to select design features that were critical in realization of each design objective; choices were furniture, views to outside, thermal comfort, lighting and color scheme.

In this PFE, the researcher utilized five-point Likert Attitude Scale questions, along with rating and top choice questions. Floor plans of the Fountain House and informed consent were attached to the developed PFE tool. (See Appendix 2 for a copy of consent form and survey.)

The Institutional Review Board at Fountain House approved this research project on October 5, 2016. The Institutional Review Board at Cornell University approved the research on November 23, 2016. The researcher piloted the survey on January 10, 2017 and revised the tool according to the feedback she received from 10 staff and members. The revisions included eliminating ranking questions and substituting them with rating questions and top choice questions.

Distribution of the paper survey questionnaires to the Fountain House members and staff took place during the meetings to discuss work-ordered day schedules that occurred in different units. A member of the Research Unit introduced the researcher to each unit and the researcher recruited participants from the meetings.

Visual Assessment Tool

A Visual Assessment Tool was developed and utilized in the survey. A space in the basement of Fountain House – the Culinary Unit – was photographed and digitally manipulated using Photoshop CC 2014. Location of this unit in the basement level prevents natural light from entering the space, and limits any immediate physical access to outdoors. In order to explore environmental interventions that might help staff and members to feel refreshed and reduce their stress levels, the researcher proposed three environmental changes: installing a virtual LED window that constantly projects views of urban nature (namely views of Central Park); attaching personalized flowerpots to walls; and providing an aquarium. In the pilot test, members and staff were asked to rank the most effective solutions. However, due to the substantial cognitive effort required to answer rank-ordered questions (Alwin & Krosnick, 1985), the researcher changed ranking to top choices questions and asked respondents to select their top two criteria.

3.1.2.3 Quantitative Analysis

The researcher transferred the data from the paper surveys to Excel spreadsheets and conducted statistical analysis of the data using T-Tests. To compare means and test whether significant differences (p <0.05, two-tailed test) could be identified between two means of independent samples (staff and members), independent sample T-Tests were performed on the data using JMP 11 software. In analyzing two (or more) responses for the same individual, Paired-Samples T-Tests were performed using JMP 11. Table 3-1 summarizes the various statistical methods used in this research for testing hypotheses.

Table 3-1: Hypotheses and Statistical Tests Used

Hypotheses	Variables		Types of Statistical Test
	Independent	Dependent	
Hypothesis One: Members of Fountain House perceive the following features in the physical environment of Fountain House, as more important than staff: • Attractive physical environment • Non-institutional physical environment • physical environment that promotes a sense of dignity and respect • physical environment that facilitates social interaction	Individual's position (member or staff)	Ratings on • Attractiveness of physical environment • Non-institutional physical environment • Promotion of dignity and respect through physical environment • Facilitating social interaction through physical environment	Independent sample T-Test
Hypothesis Two: • Members and staff of Fountain House have different opinions about attractiveness of Wellness Unit, Horticulture Unit and Communications Unit,	Individual's position (member or staff)	Ratings on • Attractiveness of physical environment • Non-institutional physical environment	Independent sample T-Test

Hypotheses	Variables	Types of Statistical Test
depending on their positions. • Members and staff of Fountain House have different opinions about non-institutional image of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions. • Members and staff of Fountain House have different opinions about promotion of dignity and respect through physical design of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions. • Members and staff of Fountain House have different opinions about facilitation of social interaction through physical design of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions.	• Promotion of dignity and respect through physical environment • Facilitating social interaction through physical environment	
Hypothesis Three: Wellness Unit and Horticulture Unit are perceived as more attractive, more non-institutional, more conducive to social interaction and sense of dignity and respect, by all respondents, compared to Communications Unit.	Compare ratings of the following features in three spaces (Wellness Unit, Communications Unit, Horticulture Unit) • Attractiveness of physical environment • Non-institutional physical environment • Promotion of dignity and respect through physical environment • Facilitating social interaction through physical environment	Paired-Samples T-Test

Hypotheses	Variables	Types of Statistical Test
Identifying features that are effective in making a unit attractive, non-institutional, promote a sense of dignity and respect, and facilitate social interaction	Choices: Furniture, views to outside, thermal comfort, lighting, color scheme	Descriptive comparison of means
Visual assessment tool: Identifying the best environmental solutions in reducing stress in basement level of Fountain House	Choices: Virtual LED window, flowerpots attached to walls, Aquarium	Descriptive comparison of means

3.1.3 Behavioral Observation

The behavioral observation portion of this post occupancy evaluation of Fountain House aimed at discovering patterns of behavior of the occupants and understanding the impacts of the physical setting on relationships between individuals and groups. According to Zimring (1987), as cited in Shepley (2011), conducting behavioral observations is among the methods that allow for recording participants' use of time. As interviews and surveys may not always be an accurate representation of how people use the environment, their behavior can demonstrate realities, which could be different from what they think and report (Shepley, 2011).

3.1.3.1 Observer's vantage point: The observer as a recognized outsider (Zeisel, 2006)

A member of the Research Unit introduced the researcher to the members and staff of the units that were to be observed (Horticulture Unit, Communications Unit and Wellness Unit). In compliance with the Institutional Review Board policies in case any individual did not want to

be observed, they could directly speak to the researcher or unit leaders and the researcher would promptly discontinue their behavioral observation and delete their recorded behavior. Moreover, upon request, the researcher introduced herself as a Cornell University student, explained about her research and showed her IRB approval form. The researcher dedicated 7 hours of behavioral observation in each unit.

3.1.3.2 Participants

The subjects observed in this research were Fountain House members and staff. Doyle, Lanoil, and Dudek, (2013), in their description of unique organizational design of Fountain House, underscored the unconditional commitment to adults suffering from mental and behavioral health issues. The authors identified being an adult with a mental illness, as the sole eligibility requirement for member acceptance by Fountain House. Members are served by staff with no distinction and are granted access to all services and activities as full members of a community (Doyle et al., 2013).

Staff at Fountain House have a unique approach to service relative to other social work agencies by emphasizing flexibility and catering to a wide spectrum of individual member interests and needs (Doyle et al., 2013). Staff are expected to form influential and genuine relationships with members (Doyle et al., 2013). The organizational design of Fountain House is also manifest in its spatial structure. Fountain House favors open spaces and a communal structure in which members and staff work together towards meeting common needs and requests of the membership (Doyle et al., 2013).

3.1.3.3 Procedure

As Zeisel (2006) described, the researcher structured her behavioral observations by describing behavior in terms of actor (either member or staff), act, context, and setting. The

researcher hypothesized that the frequency of interactions between members and staff were influenced by the spatial design of the facility. The main objective of behavioral observation in this research was to test whether there is a significant difference ($p<0.05$, two-tailed test) in frequency of social interactions in main open spaces of the three studied units. The researcher manually recorded the intended behaviors in printed charts (see Appendix 3) and conducted seven hours of behavioral observation in each unit. She was located in the open spaces in which group activities occurred in three units: the Horticulture main area, the Communications main area, and multi-purpose room in the Wellness Unit.

Three domains of verbal, visual and body behavior were utilized for categorizing the behaviors of subjects into the chart and followed the model described by Shepley, Harris, White and Steinberg (2008). Table 3-2 summarizes the behaviors.

Table 3-2: Categories of behavioral observation

1) Verbal Behavior	2) Visual Behavior:	3) Body Behavior:
1.1) Conversation: • a) Conversation with others: Each time the subject from staff or member group talked to any number of other individuals 1.2) Null verbal behavior: Conversations in other categories out of the interest of this research (talking on phone or	2.1) Observing: • a)Observing another individual: Each time the subject observed any number of staff or members 2.2) Seeking: • a) Seeking another individual: Each time the subject is looking for any staff or member • b) Seeking unknown: In case it was not clear if a member or staff is seeking another	3.1) By staff/member: • a) Sitting/ standing by staff/member: Whenever staff and members are standing or sitting beside each other without any physical contact • b) Physical contact between members and staff: Whenever staff and members are standing or seating beside each other and physically interacting with each other

1) Verbal Behavior	2) Visual Behavior:	3) Body Behavior:
talking to self) or a stop in conversation	individual, it should be recorded as seeking unknown 2.3) Null visual behavior: Seeking or observing in other categories out of the interest of this research or a stop in these behaviors, will be recorded as null visual behavior	(tapping on shoulder, holding hands, etc.) 3.2) walk out in groups of two or more: Walking out or leaving the room for eating, taking a walk, etc. 3.3) Null body behavior: Performing any body behavior that is out of the interest of this research.

In analyzing frequency of social interaction between members and staff of the three studied units, Paired-Samples T-Tests were performed using JMP 11 to investigate the significant differences ($p<0.05$) in frequency of social interaction. Table 3-3 summarizes the hypothesis.

Table 3-3: Hypothesis and statistical test used in behavioral observation

Hypotheses	Variables	Types of Statistical Test
Hypothesis: There would be significantly more members and staff interactions in the two recently renovated units (Wellness Unit and Horticulture Unit) than the Communications Unit	Compare frequency of interaction in three spaces (Wellness Unit, Communications Unit, Horticulture Unit)	Paired-Samples T-Test

CHAPTER 4: RESULTS

4.1 Survey

4.1.1 Demographics Information:

The affiliations of the respondents were reported as: 23% staff *(n= 13)* and 77% as members *(n= 43)*, with the mean length of (*M= 8 years and 4 months*) employment for staff and mean length of membership (*M= 10 years and 6 months*) for members. Approximately 66% of members *(n=29)* reported their visit to Fountain House as daily, 28% (*n=12*) as weekly, 4.5% *(n=2)* as monthly, and only 2.2% (*n=1*) reported as yearly. The overall mean for age of the respondents was 46 years old. With regard to staff, the mean age was 34 years old and members reported a mean age of 50 years.

The level of education of respondents were reported as 22.2% *(n=10)* as high school graduate, diploma or the equivalent, and 31.1% *(n=14)* as having received some college credits. 28.8% (n=13) reported having received a bachelor's degree, 8.8% *(n=4)* a master's degree, 4.4% *(n=2)* trade, technical or vocational training, 2.2% *(n=1)* a professional degree, and 2.2% *(n=1)* a doctorate degree.

Of the participants who reported their race/ ethnicity, 62.5% *(n=35)* identified themselves as Caucasian, 19.64% *(n=11)* as African American, 12.5% *(n=7)* as Hispanic or Latino, and 5.35% *(n=3)* as other.

Table 4-1: Race-ethnicity of participants

Race/ Ethnicity	N (%)
Hispanic or Latino	7 (12.5%)
Asian	1 (1.78%)
American Indian or Alaska Native	0 (0%)
Pacific Islander	0 (0%)
African American	11 (19.64%)
Caucasian	35 (62.50%)
Other	2 (3.57%)

Table 4-2: Age range of participants

Question	Overall Mean (SD)	Staff Mean (SD)	Members Mean (SD)
1) Age	46.4259 (14.6282)	34.6154 (5.6056)	50.1707 (14.6422)

Table 4-3: Affiliation (member or staff):

Question	Staff N (%)	Members N (%)
Affiliation	13 (23.21%)	43 (76.78%)

Table 4-4: Frequency of visits for members:

Frequency of Visits (members)	N (%)
1) Daily	29 (65.90%)
2) Weekly	12 (27.27%)
3) Monthly	2 (4.54%)
4) Yearly	1 (2. 27%)

Table 4-5: Levels of Education:

Highest Level of education achieved	N (%)
1) 8th grade	0
2) Some high school, no diploma	0
3) High school graduate, diploma or the equivalent	10 (22.22%)
4) Some college credit, no degree	14 (31.11%)
5) Trade/ technical/ vocational training	2 (4.44%)
6) Bachelor's degree	13 (28.88%)
7) Master's degree	4 (8.88%)
8) Professional degree	1 (2.22%)
9) Doctorate degree	1 (2.22%)

4.1.2. Hypothesis 1

The following hypotheses were examined using independent sample T-Tests: Members of Fountain House perceive the following features in the physical environment of Fountain House, as more important than staff:

- Attractive physical environment
- Non-institutional physical environment
- Physical environment that promotes a sense of dignity and respect
- Physical environment that facilitates social interaction

The results are summarized in Table 4-6.

Assuming equal variances for the independent sample T-Test in this study, the results indicated that on average, staff perceive importance of a non-institutional physical environment significantly *($p<0.05$)* more important than members. However, there is no significant difference between members and staff's ratings on the importance of attractive physical environment; physical environment that promotes a sense of dignity and respect; and physical environment that facilitates social interaction. It is worth noting that overall both respondents from staff and members rated the importance of categories in this question quite highly (4 on a 5-point Likert scale).

Table 4-6: Independent sample T-Test (Assuming equal variances)

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
6.1)	Attractiveness	3.9821 (0.7975)	3.9230	4.000	0.7563
6.2)	non-institutional image	4.1636 (0.8769)	4.5384	4.0476	0.0425
6.3)	Dignity and respect	4.375 (0.6758)	4.6153	4.3023	0.0883
6.4)	Social interaction	4.2909 (0.6575)	4.6153	4.1904	0.0518

4.1.3 Hypothesis 2

Hypothesis 2 has four parts and aimed to investigate the differences in opinion between members and staff about attractiveness, non-institutional image, promotion of dignity and respect, and facilitation of social interaction, in physical spaces particular to three units of Fountain House: Wellness Unit, Horticulture Unit, and Communications Unit.

4.1.3.1 Part I: Attractiveness

The following hypothesis was examined using independent sample T-Test: members and staff of Fountain House have different opinions about attractiveness of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions (member or staff). The results are summarized in Table 4-7.

Assuming equal variances for the independent sample T-Test in this study, the results indicated that on average, members and staff perceive Fountain House as an attractive environment *(M=4.39, SD=0.61).* Moreover, there is no significant difference between members and staff's opinions about attractiveness of the Wellness Unit *(M=4.46, SD=0.75)* and its sub-spaces (gym *(M=4.30, SD=0.69)*, yoga studio *(M=4.29, SD=0.74)*, kitchen *(M=4.18, SD=0.80)*, showers and locker rooms *(M=3.90, SD=0.85)*, and multi-purpose space *(M=4.24, SD=0.82)*).

There is no significant difference between members' and staff's opinions about attractiveness of the Horticulture Unit *(M=4.24, SD=0.66)* and its sub-spaces (Horticulture main open space *(M=4.4.03, SD=0.73)*, Hydroponic room *(M=3.70, SD=0.96)* and patio *(M=4.30, SD=0.72)*). There is no significant difference between members and staff's opinions about attractiveness of Communications Unit *(M=3.86, SD=0.88)* and its sub-spaces: Communications Unit main open space *(M=3.65, SD=0.88)*. However, members' perceptions of attractiveness of Audio/visual room *(M=3.65, SD=0.90)* and Copy Center *(M=3.60, SD=0.87)* are significantly

(p<0.05) higher than staff. It is worth mentioning that on average, Communications Unit is rated slightly less attractive compared to other two units.

Table 4-7: Independent sample T-Test (Assuming equal variances)

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
7)	Fountain House Attractiveness	4.3913 (0.6138)	4.4444	4.3783	0.7515
8.1)	Wellness Unit overall Attractiveness	4.4629 (0.7451)	4.6666	4.4047	0.1742
8.1.1)	Gym	4.3090 (0.6904)	4.5384	4.2381	0.1712
8.1.2)	Yoga	4.2962 (0.7430)	4.6153	4.1951	0.0629
8.1.3)	Kitchen	4.1886 (0.8099)	4.4615	4.1000	0.1223
8.1.4)	Multi-purpose room	4.2452 (0.8298)	4.4615	4.1750	0.2701
8.1.5)	Showers	3.9019 (0.8545)	3.7692	3.9473	0.4797
8.2)	Horticulture Unit Overall Attractiveness	4.2448 (0.6624)	4.1818	4.2631	0.7071
8.2.1)	Horticulture main area	4.0377 (0.7328)	3.9230	4.0750	0.4863
8.2.2)	Hydroponic room	3.7058 (0.9652)	3.2307	3.8684	0.0731
8.2.3)	Patio	4.3018 (0.7228)	4.3846	4.2750	0.6165
8.3)	Communications Unit Overall Attractiveness	3.8695 (0.8846)	3.5454	3.9714	0.1146
8.3.1)	Communications Unit main area	3.6538 (0.8830)	3.3076	3.7692	0.0534
8.3.2)	Audio/ Visual room	3.6538 (0.9049)	3.2307	3.7948	0.0324
8.3.3)	Copy center	3.6078 (0.8735)	3.2307	3.7368	0.0303

4.1.3.2 Part II: Non-institutional Image

The following hypothesis was examined using independent sample T-Test: members and staff of Fountain House have different opinions about non-institutional image of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions. The results are summarized in Table 4-8.

Assuming equal variances for the independent sample T-Test in this study, the results indicated that on average, members and staff perceive Fountain House very close to a non-

institutional environment *(M=3.84, SD=0.99).* Moreover, there is no significant difference between members and staff's opinions about non-institutional image of Wellness Unit *(M=3.62, SD=0.98)* and its sub-spaces (gym *(M=3.52, SD=1.03)*, yoga studio *(M=3.48, SD=0.99)*, kitchen *(M=3.66, SD=1.04)*, showers and locker rooms *(M=3.47, SD=0.95)*, and the multi-purpose space *(M=3.55, SD=0.90)*).

There is no significant difference between members and staff's opinions about non-institutional image of Horticulture Unit *(M=3.90, SD=0.89)* and its sub-spaces (Horticulture main open space *(M=3.70, SD=0.88)*, Hydroponic room *(M=3.5, SD=0.96)* and patio *(M=3.79, SD=0.85)*). There is no significant difference between members and staff's opinions about non-institutional image of Communications Unit *(M=3.47, SD=1.04)* and its sub-spaces (Communications Unit main open space *(M=3.40, SD=0.95)*, Audio/visual room *(M=3.37, SD=0.91)* and Copy Center *(M=3.30, SD=0.98)*).

Table 4-8: Independent sample T-Test (Assuming equal variances)

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
9)	Fountain House non-institutional image	3.84 (0.9971)	3.90	3.8250	0.7968
10.1)	Wellness Unit overall non-institutional image	3.6226 (0.9850)	3.3333	3.7073	0.1890
10.1.1)	Gym	3.5283 (1.0303)	3.4166	3.5609	0.7022
10.1.2)	Yoga	3.4807 (0.9998)	3.3076	3.5384	0.5309
10.1.3)	Kitchen	3.6666 (1.0461)	3.6153	3.6829	0.8492
10.1.4)	Multi-purpose room	3.5555 (0.9042)	3.5384	3.5609	0.9373
10.1.5)	Showers	3.4716 (0.9528)	3.4615	3.4750	0.9633
10.2)	Horticulture Unit Overall non-institutional image	3.9038 (0.8913)	3.9166	3.9000	0.9517
10.2.1)	Horticulture main area	3.7037 (0.8823)	3.7692	3.6829	0.7702
10.2.2)	Hydroponic room	3.5 (0.9664)	3.4615	3.5122	0.8847
10.2.3)	Patio	3.7962 (0.8551)	3.9230	3.7561	0.5494
10.3)	Communications Unit Overall non-institutional image	3.4705 (1.0460)	3.3076	3.5263	0.4960

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
10.3.1)	Communications Unit main area	3.4038 (0.9550)	3.2307	3.4615	0.4505
10.3.2)	Audio/ Visual room	3.3725 (0.9156)	3.1538	3.4473	0.3238
10.3.3)	Copy center	3.3076 (0.9809)	2.9230	3.4359	0.0872

4.1.3.3 Part III: Dignity and Respect

The following hypothesis was examined using independent sample T-Test: members and staff of Fountain House have different opinions about promotion of dignity and respect through physical design of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions. The results are summarized in Table 4-9.

Assuming equal variances for the independent sample T-Test in this study, the results indicated that on average, staff perceive Fountain House environment as significantly more *($p<0.05$)* conducive to promoting sense of respect and dignity *($M=4.77$)* than members *($M=4.34$)*. There is no significant difference between members and staff's opinions about promotion of dignity and respect through physical space of Wellness Unit *($M=4.31$, $SD=0.74$)* and its sub-spaces (gym *($M=4.24$, $SD=0.75$)*, yoga studio *($M=4.17$, $SD=0.80$)*, kitchen *($M=4.18$, $SD=0.84$)*, showers and locker rooms *($M=4.11$, $SD=0.85$)*, and the multi-purpose space *($M=4.18$, $SD=0.78$)*).

There is no significant difference between members and staff's opinions about promotion of dignity and respect through physical space of Horticulture Unit *($M=4.15$, $SD=0.76$)* and its sub-spaces (Horticulture main open space *($M=4.05$, $SD=0.76$)*, Hydroponic room *($M=3.96$, $SD=0.84$)* and patio *($M=4.20$, $SD=0.78$)*). There is no significant difference between members and staff's opinions about promotion of dignity and respect through physical space of

Communications Unit *(M=3.93, SD=0.90)* and its sub-spaces (Communications Unit main open space *(M=3.85, SD=0.87)*, Audio/visual room *(M=3.87, SD=0.84)* and Copy Center *(M=3.79, SD=0.87)*)

Table 4-9: Independent sample T-Test (Assuming equal variances)

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
11)	Promotion of dignity and respect in Fountain House environment	4.4318 (0.6611)	4.7777	4.3428	0.0311
12.1)	Wellness Unit Overall promotion of dignity and respect	4.3148 (0.7479)	4.5384	4.2439	0.1913
12.1.1)	Gym	4.2452 (0.7571)	4.3846	4.2000	0.4587
12.1.2)	Yoga	4.1730 (0.8097)	4.3846	4.1025	0.2719
12.1.3)	Kitchen	4.1851 (0.8483)	4.4615	4.0975	0.1248
12.1.4)	Multi-purpose room	4.1886 (0.7858)	4.3846	4.1250	0.3051
12.1.5)	Showers	4.1153 (0.8552)	4.2307	4.0769	0.6020
12.2)	Horticulture Unit Overall promotion of dignity and respect	4.1509 (0.7695)	4.2307	4.1250	0.6594
12.2.1)	Horticulture main area	4.0555 (0.7627)	4.2307	4.000	0.3364
12.2.2)	Hydroponic room	3.9629 (0.8459)	4.1538	3.9024	0.3822
12.2.3)	Patio	4.2037 (0.7861)	4.3846	4.1463	0.3445
12.3)	Communications Unit Overall promotion of dignity and respect	3.9375 (0.9087)	3.8461	3.9714	0.6520
12.3.1)	Communications Unit main area	3.8541 (0.8749)	3.8461	3.8571	0.9679
12.3.2)	Audio/ Visual room	3.875 (0.8410)	3.6923	3.9428	0.3746
12.3.3)	Copy center	3.7916 (0.8741)	3.6153	3.8571	0.4028

4.1.3.4 Part IV: Social Interaction

The following hypothesis was examined using independent sample T-Test: members and staff of Fountain House have different opinions about facilitation of social interaction through physical design of Wellness Unit, Horticulture Unit and Communications Unit, depending on their positions. The results are summarized in Table 4-10.

Assuming equal variances for the independent sample T-Test in this study, the results indicated that on average, members and staff perceive Fountain House as an environment conducive to social interaction between staff *(M=4.09, SD=0.78),* between members *(M=4.09, SD=0.68)*, and between staff and members *(M=4.13, SD=0.80).* There is no significant difference between members and staff's opinions about promotion of social interaction through physical space of Wellness Unit *(M=4.26, SD=0.73)* and its sub-spaces (gym *(M=4.03, SD=0.80)*, yoga studio *(M=3.94, SD=0.89)*, showers and locker rooms *(M=3.80, SD=0.95)*, and the multi-purpose space *(M=4.07, SD=0.80)*). However, the sub-space 'Kitchen' is perceived as significantly more *($p<0.05$)* conducive to social interaction by staff *(M=4.53)* than members *(M=4.02).*

There is no significant difference between members and staff's opinions about promotion of social interaction through physical space of Horticulture Unit *(M=4.21, SD=0.73)* and its sub-space (Hydroponic room *(M=3.84, SD=0.88)*). However, the sub-space 'Horticulture main open space', is perceived as significantly more *($p<0.05$)* conducive to social interaction by staff *(M=4.46)* than members *(M=4.00)*. Also, the sub-space 'Patio' is perceived as significantly more *($p<0.05$)* conducive to social interaction by staff *(M=4.46)* than members *(M=4.05)*.

There is no significant difference between members and staff's opinions about promotion of social interaction through physical space of Communications Unit *(M=4.04, SD=0.75)* and its sub-spaces (Communications Unit main open space *(M=4.04, SD=0.75)*, Audio/visual room *(M=3.9, SD=0.76)* and Copy Center *(M=3.92, SD=0.77)*).

Table 4-10: Independent sample T-Test (Assuming equal variances)

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
13)	Facilitation of social interaction between	4.0925 (0.7835)	3.8461	4.1707	0.2531

	Question	Overall Mean (SD)	Mean Staff	Mean Members	P-value Prob > |t|
	staff in Fountain House				
14)	Facilitation of social interaction between members in Fountain House	4.0943 (0.6868)	4.1666	4.0731	0.6466
15)	Facilitation of social interaction between staff and members in Fountain House	4.1320 (0.8095)	4.2500	4.0975	0.5028
16.1)	Wellness Unit Overall facilitation of social interaction between staff and members	4.2641 (0.7377)	4.3846	4.2250	0.4046
16.1.1)	Gym	4.0377 (0.8077)	4.1538	4.000	0.5157
16.1.2)	Yoga	3.9423 (0.8947)	4.0000	3.9230	0.7944
16.1.3)	Kitchen	4.1538 (0.8256)	4.5384	4.0256	0.0328
16.1.4)	Multi-purpose room	4.0754 (0.8050)	4.3846	3.9750	0.0780
16.1.5)	Showers	3.8039 (0.9595)	3.4615	3.9210	0.2195
16.2)	Horticulture Unit Overall facilitation of social interaction between staff and members	4.2115 (0.7231)	4.4615	4.1282	0.0881
16.2.1)	Horticulture main area	4.1132 (0.7509)	4.4615	4.0000	0.0211
16.2.2)	Hydroponic room	3.8490 (0.8857)	3.7692	3.8750	0.7643
16.2.3)	Patio	4.1509 (0.7695)	4.4615	4.0500	0.0408
16.3)	Communications Unit Overall facilitation of social interaction between staff and members	4.04 (0.7548)	4.1538	4.0000	0.4568
16.3.1)	Communications Unit main area	4.04 (0.7548)	4.3076	3.9459	0.0634
16.3.2)	Audio/ Visual room	3.9 (0.7626)	4.0000	3.8648	0.5708
16.3.3)	Copy center	3.92 (0.7782)	3.9230	3.9189	0.9868

4.1.4 Hypothesis 3

Wellness Unit and Horticulture Unit are perceived as more attractive, more non-institutional, more conducive to social interaction and sense of dignity and respect, by all respondents, compared to Communications Unit.

Paired T-Test analysis of responses demonstrated that Communications Unit overall is rated as significantly less attractive compared to overall spaces of Horticulture and Wellness Units. The results are summarized in Table 4-11.

Table 4-11: Paired sample T-Test (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
Attractiveness (Horticulture Unit – Wellness Unit)	4.22 – 4.37	0.1808
Attractiveness (Communications Unit – Wellness Unit)	3.86 – 4.37	0.0019
Attractiveness (Communications Unit – Horticulture Unit)	3.86 – 4.22	0.0079

Paired T-Test analysis of responses demonstrated that Wellness Unit and Communications Unit overall, are rated as significantly less de-institutionalized than the Horticulture Unit. The results are summarized in Table 4-12.

Table 4-12: Paired sample T-Test (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
De-institutionalized environment (Horticulture Unit – Wellness Unit)	3.87 – 3.61	0.0020
De-institutionalized environment (Communications Unit – Wellness Unit)	3.46 – 3.61	0.2539
De-institutionalized environment (Communications Unit – Horticulture Unit)	3.46 – 3.87	0.0023

Paired T-Test analysis of responses demonstrated that spaces in the Wellness Unit and Horticulture Unit overall, are rated as significantly more conducive to respecting individual's dignity and respect, than the Communications Unit. The results are summarized in Table 4-13.

Table 4-13: Paired sample T-Test (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
Dignity and respect through environment (Horticulture Unit – Wellness Unit)	4.20 – 4.33	0.1595
Dignity and respect through environment (Communications Unit – Wellness Unit)	3.93 – 4.33	0.0044
Dignity and respect through environment (Communications Unit – Horticulture Unit)	3.93 – 4.20	0.0079

4.1.4.4 Architectural Features

In this section, the goal was to identify architectural features that are effective in making a unit attractive, non-institutional, promote a sense of dignity and respect, and facilitate social interaction. Choices included: furniture, views to outside, thermal comfort, lighting, color scheme.

4.1.4.4.1 Attractiveness

With regard to features that are effective in creating an attractive environment, initial descriptive comparison of means indicate that views to outside play the most important role in attractiveness *(M=0.72)*, followed by lighting *(M=0.69)*, furniture *(M=0.58)*, thermal comfort *(M=0.51)* and color scheme *(M=0.30)*.

Matched paired T-Test analysis of the categories, showed that color scheme is significantly less effective in creating an attractive environment compared to views to outside, lighting and furniture. The results are summarized in Table 4-15.

Table 4-14: Features that create attractiveness

Features that create attractiveness	Mean (SD)
Furniture	0.5813 (0.4991)
Views to outside	0.7209 (0.4538)
Thermal Comfort	0.5116 (0.5057)
Lighting	0.6976 (0.4647)
Color Scheme	0.3023 (0.4647)

Table 4-15: Paired sample T-Test of features that create attractiveness (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
Attractiveness (Views to outside - Furniture)	0.7209 – 0.5813	0.24
Attractiveness (Thermal Comfort - Furniture)	0.5116 – 0.5813	0.55
Attractiveness (Lighting - Furniture)	0.6976– 0.5813	0.32
Attractiveness (Color scheme - Furniture)	0.3023 - 0.5813	0.0088
Attractiveness (Thermal Comfort – Views to outside)	0.5116 - 0.7209	0.059
Attractiveness (Lighting – Views to outside)	0.6976 - 0.7209	0.82
Attractiveness (Color Scheme – Views to outside)	0.3023 - 0.7209	0.0005
Attractiveness (Lighting – Thermal comfort)	0.6976 - 0.5116	0.10
Attractiveness (Color Scheme – Thermal comfort)	0.3023 - 0.5116	0.08
Attractiveness (Color Scheme – Lighting)	0.3023 - 0.6976	0.0009

4.1.4.4.2 Non-intuitional Environment

With regard to features that are effective in creating a non-institutional environment, initial descriptive comparison of means indicate that views to outside play the most important

role in de-institutionalization *(M=0.76)*, followed by furniture *(M=0.58)*, lighting *(M=0.55)*, color scheme *(M=0.51)* and thermal comfort *(M=0.41)*.

Matched paired T-Test analysis of the categories showed that views to outside is significantly more effective *($p<0.05$)* in creating a non-institutional environment than furniture, lighting, thermal comfort, and color scheme. The results are summarized in Table 4-17.

Table 4-16: Features that create non-institutional image

Features that create non-institutional image	Mean (SD)
Furniture	0.5848 (0.5046)
Views to outside	0.7674 (0.4274)
Thermal Comfort	0.4186 (0.4991)
Lighting	0.5581 (0.5024)
Color Scheme	0.5116 (0.5057)

Table 4-17: Paired sample T-Test of features that create a non-institutional environment (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
non-institutional setting (Views to outside - Furniture)	0.7674 – 0.5848	0.03
non-institutional setting (Thermal Comfort - Furniture)	0.4186 – 0.5848	0.28
non-institutional setting (Lighting - Furniture)	0.5581 – 0.5848	0.85
non-institutional setting (Color scheme - Furniture)	0.5116 - 0.5848	0.85
non-institutional setting (Thermal Comfort – Views to outside)	0.4186 - 0.7674	0.001
non-institutional setting (Lighting – Views to outside)	0.5581 - 0.7674	0.03
non-institutional setting (Color Scheme – Views to outside)	0.5116 - 0.7674	0.03
non-institutional setting (Lighting – Thermal comfort)	0.5581 - 0.4186	0.26
non-institutional setting (Color Scheme – Thermal comfort)	0.5116 - 0.4186	0.45
non-institutional setting (Color Scheme – Lighting)	0.5116 - 0.5581	0.67

4.1.4.4.3 Sense of Dignity and Respect

With regard to features that are effective in promoting a sense of dignity and respect through the environment, initial descriptive comparison of means indicate that views to outside play the most important role *(M=0.69)*, followed by furniture *(M=0.67)*, lighting, and thermal comfort *(M=0.58)*, and color scheme *(M=0.39)*.

Matched paired T-Test analysis of the categories showed that views to outside and furniture are significantly more effective *($p<0.05$)* in creating a sense of respect and dignity compared to color scheme. The results are summarized in Table 4-19.

Table 4-18: Features that promote a sense of respect and dignity

Features that promote a sense of respect and dignity	Mean (SD)
Furniture	0.6744 (0.4741)
Views to outside	0.6976 (0.4647)
Thermal Comfort	0.5813 (0.4991)
Lighting	0.5813 (0.4991)
Color Scheme	0.3953 (0.4947)

Table 4-19: Paired sample T-Test of features that create a sense of dignity and respect through the environment (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
sense of dignity (Views to outside - Furniture)	0.6976 – 0.6744	0.83
sense of dignity (Thermal Comfort - Furniture)	0.5813 – 0.6744	0.37
sense of dignity (Lighting - Furniture)	0.5813 – 0.6744	0.43
sense of dignity (Color scheme - Furniture)	0.3953 - 0.6744	0.008
sense of dignity (Thermal Comfort – Views to outside)	0.5813 - 0.6976	0.30

Question	Mean Comparison	P-value Prob > |t|
sense of dignity (Lighting – Views to outside)	0.5813 - 0.6976	0.28
sense of dignity (Color Scheme – Views to outside)	0.3953 - 0.6976	0.007
sense of dignity (Lighting – Thermal comfort)	0.5813 - 0.5813	1
sense of dignity (Color Scheme – Thermal comfort)	0.3953 - 0.5813	0.13
sense of dignity (Color Scheme – Lighting)	0.3953 - 0.5813	0.10

4.1.4.4.4 Social Interaction

With regard to features that are effective in promoting social interaction through the environment, initial descriptive comparison of means indicate that furniture play the most important role *(M=0.71),* followed by views to outside *(M=0.59),* thermal comfort *(M=0.57),* lighting *(M=0.69)* and color scheme *(M=0.33)*.

Matched paired T-Test analysis of the categories, showed that color scheme is significantly less effective in promoting social interaction in the environment compared to views to outside, lighting, thermal comfort, and furniture. The results are summarized in Table 4-21.

Table 4-20: Features that facilitate social interaction

Features that facilitate social interaction	Mean (SD)
Furniture	0.7142 (0.4572)
Views to outside	0.5952 (0.4967)
Thermal Comfort	0.5714 (0.5008)
Lighting	0.6904 (0.4679)
Color Scheme	0.3333 (0.4771)

Table 4-21: Paired sample T-Test of features that are effective in promoting social interaction through the environment (Assuming equal variances)

Question	Mean Comparison	P-value Prob > |t|
sense of dignity (Views to outside - Furniture)	0.5952 – 0.7142	0.28
sense of dignity (Thermal Comfort - Furniture)	0.5714 – 0.7142	0.20
sense of dignity (Lighting - Furniture)	0.6904 – 0.7142	0.81
sense of dignity (Color scheme - Furniture)	0.3333 - 0.7142	0.001
sense of dignity (Thermal Comfort – Views to outside)	0.5714 - 0.5952	0.83
sense of dignity (Lighting – Views to outside)	0.6904 - 0.5952	0.40
sense of dignity (Color Scheme – Views to outside)	0.3333 - 0.5952	0.03
sense of dignity (Lighting – Thermal comfort)	0.6904 - 0.5714	0.28
sense of dignity (Color Scheme – Thermal comfort)	0.3333 - 0.5714	0.02
sense of dignity (Color Scheme – Lighting)	0.3333 - 0.6904	0.0006

4.1.4.5 Visual assessment tool:

To explore an effective solution in reducing stress and help individuals to feel more refreshed in the basement level of Fountain House, three solutions were explored: installing a virtual LED window on the surface of a wall, installing personalized flowerpots on a wall surface and installing an aquarium. Initial descriptive comparison of means indicate that virtual LED window was chosen as the most effective solution *(M=0.72),* followed by aquarium *(M=0.67),* and flowerpots attached to wall *(M=0.37).*

Table 4-22: Features that are effective in reducing stress

Features that are effective in reducing stress	Mean (SD)
Existing condition	0.225 (0.4229)
Virtual LED window	0.725 (0.4522)
Flowerpots attached to wall	0.375 (0.4902)

Features that are effective in reducing stress	Mean (SD)
Aquarium	0.675 (0.4743)

4.2 Behavioral observation

The hypothesis for conducting behavioral observation in the three studied units was that there would be significantly more members and staff interactions in the two recently renovated units (Wellness Unit and Horticulture Unit) than the Communications Unit.

Table 4-23: Frequency of Conversation

Frequency of Conversation	N (%)
Wellness Unit	171 (88.14%)
Horticulture Unit	117 (75%)
Communications Unit	160 (68.67%)

Matched paired T-Test analysis of the frequency of conversation in the units showed that staff-members interactions happened significantly more *($p<0.05$)* in Wellness Unit compared to Horticulture Unit and Communications Unit, in an equal seven-hour period.

CHAPTER 5: DISCUSSION

5.1 Discussion

This post-occupancy evaluation study tested whether spatial design of this community-based mental health facility supported or inhibited perceived sense of dignity and respect, non-institutional image, perception of attractiveness, and social interaction among members and staff of Fountain House. The researcher evaluated three units – one originally designed and built in 1965 (Communications Unit), and two units that were modified and re-purposed at the beginning of the twenty first century (Wellness Center and Horticulture Unit). The researcher aimed to compare members and staff's perception of the physical environment of Fountain House and test their opinions about adherence of the current space to primary goals and objectives of design. Identification of design features that were effective in realization of initial goals and objectives in this setting was another imperative task of the study.

Members and staff of Fountain House generally agreed that issues of attractiveness, de-institutionalization, promotion of dignity and respect and social interaction, are very important qualities of physical environment of Fountain House. Compared to members, staff believed issues related to de-institutionalization of physical space and creating a 'homelike' environment hold a higher importance in organization of space. Moreover, paired T-Test analysis of responses demonstrated that Wellness Unit and Communications Unit overall, were rated as significantly less de-institutionalized than the Horticulture Unit. Carr (2011) in describing approaches to achieve de-institutionalization, described utilization of cheerful colors and textures while choosing materials for therapeutic environment of mental and behavioral settings. Findings of this research demonstrated that providing views to outside is among the most effective strategies

that can improve non-institutional image of a mental and behavioral health setting, located in a dense urban environment. This is in keeping with the findings of Shepley et al. (2016) regarding the importance of access to nature and gardens in mental and behavioral health settings that will further create an 'everyday', joyful and therapeutic experience.

Regarding attractiveness of the physical environment of Fountain House and the three studied units, staff and members generally agreed on the attractiveness of the setting. However, paired T-Test analysis of responses demonstrated that Communications Unit overall was rated as significantly less attractive compared to overall spaces of the Horticulture and Wellness Units. Davidson et al., (1996) in describing approaches to creating an attractive space, referred to cleanliness, condition and aesthetic appeal as categories that defined physical attractiveness of an acute day hospital and crisis respite program. In addition, the PACI instrument developed by Timko (1996), identified proper lighting, decorated hallways, ADA accessible spaces, sheltered seating and outdoor entrances, and adequate office spaces for staff, as important features that can create appeal and attractiveness. The findings of this research identified views to outdoors as the most important feature that contributes to the attractiveness of the environment, followed by proper lighting, furniture and providing thermal comfort in the space.

With regard to promoting a sense of dignity and respect through physical space, staff rated overall environment of Fountain House as significantly more conducive to respecting individual's dignity, than members. As Joan Yalden, and McCormack, (2010) reported, dignity in a healthcare workplace is closely associated with celebrating and taking pride in belonging to a community that strives toward innovative solutions for improved outcomes for patients or residents. I speculate that, as staff interactions with the individuals and groups occur on a daily

basis at Fountain House, club members benefit from a stronger sense of community that is reflected in their high ratings for dignity and respect for the overall environment.

With regard to the three studied units, members and staff generally agreed that physical environments of Horticulture, Communications and Wellness Units promote a sense of respect. Moreover, paired T-Test analysis of responses demonstrated that spaces in the Wellness Unit and Horticulture Unit overall, were rated as significantly more conducive to respecting individual's dignity and respect, than the Communications Unit. Davidson et al., (1996), described stimulating, attractive, comfortable and cohesive physical environment as an embodiment of respect, self-determination and raising dignity for psychiatric patients. This study found that providing views to outside, followed by appropriate furniture, lighting and thermal comfort are important environmental strategies for enhancing a sense of dignity and respect in context of this urban facility. This finding is in keeping with the definition of a healing environment offered by Dellinger (2010) that considers the role of respect and dignity as imperative for creating a space for healing. The author also identified elements such as providing views and access to nature, social support, and control over options, positive distraction, proper lighting and thermal comfort as important components of a healing environment.

Regarding social interaction, the survey results demonstrated that generally members and staff agreed that the physical environment of Fountain House and the three studied units facilitate social interaction between staff; members; and members and staff. With regard to sub-spaces of the three studied units, ratings were different for members and staff for the three subspaces of Kitchen (Wellness Unit), Horticulture main area (Horticulture Unit), and Patio (Horticulture Unit). Staff rated these three sub-spaces as significantly more conducive to social interaction, than members. Schjødt et al. (2003) reported that differences between patients and staff

perceptions in psychiatric settings may occur. However, this may demonstrate nuances in views rather than intrinsic differences of opinions.

In describing the elements of the psycho-environmental model, Gross et al., (1998), identified designing a variety of spaces that support social interaction such as well-lit and ventilated day rooms and living rooms furnished with residential furniture instead of institutional pieces; and also porches that continue to the landscape surrounding the facility and provide opportunities for access to nature, daylight and fresh air. In line with Gross et al., (1998) findings, the survey results demonstrated that furniture play the most important role in creating opportunities for social interaction in the units followed by views to outside, thermal comfort and lighting.

The results of behavioral observation in the three studied units demonstrated that conversation between members and staff happened significantly more frequent in Wellness Unit compared to Horticulture Unit and Communications Unit. It should be emphasized that the varied nature of tasks that members and staff perform to complete work-ordered day in each unit is an important predictor for frequency of conversation in space and should be considered in future studies.

Paired T-Test analysis of responses between sub-spaces of each of the three identified units demonstrated that ‘showers and locker rooms’ in the Wellness Unit, ‘hydroponic room’ in the Horticulture Unit and ‘copy center’ in the Communications Unit could benefit from improvements with regard to de-institutionalization and attractiveness.

The visual assessment tool in the survey that explored a solution in reducing stress and helping individuals to feel more refreshed in the basement level of Fountain House, demonstrated that installing a virtual LED window that projects pictures of nature followed by

installing an aquarium could be two effective solutions. Berto (2014), also emphasized the numerous psycho-physiological health benefits of actual nature and identified virtual nature as a replacement for spaces with limited access to outside.

Overall, the data in this research suggests that the physical spaces of the units of Fountain House studied in this research, are perceived as compatible with the initial goals and objectives of design, by staff and members. In addition, the Communications Unit could benefit from improvements in attractiveness, de-institutionalization and adjustments towards promoting sense of dignity and respect for both members and staff. The findings of the research underscored the importance of providing views to outside in creating an attractive, de-institutionalized environment that is conducive to respecting individual's dignity, in context on a dense urban facility.

With regard to study limitations, this research was a case study of a single urban clubhouse facility. While the format of the survey tool has been used elsewhere, the content has not been examined for validity and reliability. Another shortcoming of the study was the small staff sample size relative to the total number of respondents. Future studies should strive to recruit more participants from the staff population. In addition, duration and categories for behavioral observation could be further expanded to reveal more valuable information regarding the role of environment in facilitating patterns of behavior between members and staff in the Fountain House community. Regarding another limitation, the researcher's physical presence in this behavioral observation experience may have indirectly (unintentionally) affected actions of participants.

The increase in design and construction of therapeutic spaces for individuals facing mental and behavioral health challenges is a critical task that requires ongoing engagement of

environmental design researchers in creating reliable evidence-based strategies for architects and designers of this type of facility. This study aimed to shed light on the effect of environment on some of the fundamental psychological/behavioral outcomes in a single community-based mental and behavioral health setting in the United States. It is recommended that other clubhouses around the world consider comparable studies to support the creation of a body of literature on this topic.

CHAPTER 6: CONCLUSION

6.1 Design Guidelines

An important finding of this study refers to the effects of views to the outdoors in improving psychological/behavioral outcomes among staff and members of this urban community-based behavioral health setting. Ulrich et al. (2012) called attention to the limited reliable evidence in current literature regarding the influence of access to gardens in similar environments. While this research revealed high preference among individuals for views to outside, future research could be directed toward identifying appropriate designs and locations for gardens and respite areas in the facilities. Based on the findings of the research, several guidelines can be drawn from this study:

- Provide views and access to outdoors for units to create an attractive, de-institutionalized environment that is conducive to promoting a sense of respect and dignity
- Provide maximum access to daylight
- Provide open-bay spaces and flexibility in furniture arrangement to promote spontaneity and social interaction in the environment
- Provide spaces for staff-patients interaction, both indoors and outdoors
- Provide multiple usable spaces that are conducive to joyful and "everyday" activities in people's lives, that a patient can voluntarily choose from, such as vegetables gardens, kitchens, gyms etc.
- Utilize art, artificial nature, or virtual immersive technology to create positive distraction in spaces with limited access to outdoors and natural lighting

In summary, this study strived to provide reliable evidence for spatial design of future community-based mental health facilities through post-occupancy evaluation of an urban clubhouse environment. In close collaboration with design practitioners, design researchers are encouraged to conduct pre and post-occupancy evaluation studies in outpatient mental and behavioral settings, and provide further evidence regarding achieving desired therapeutic outcomes, improving dignity and respect, introducing features for deinstitutionalization, and enhancing social interaction among providers and consumers of care.

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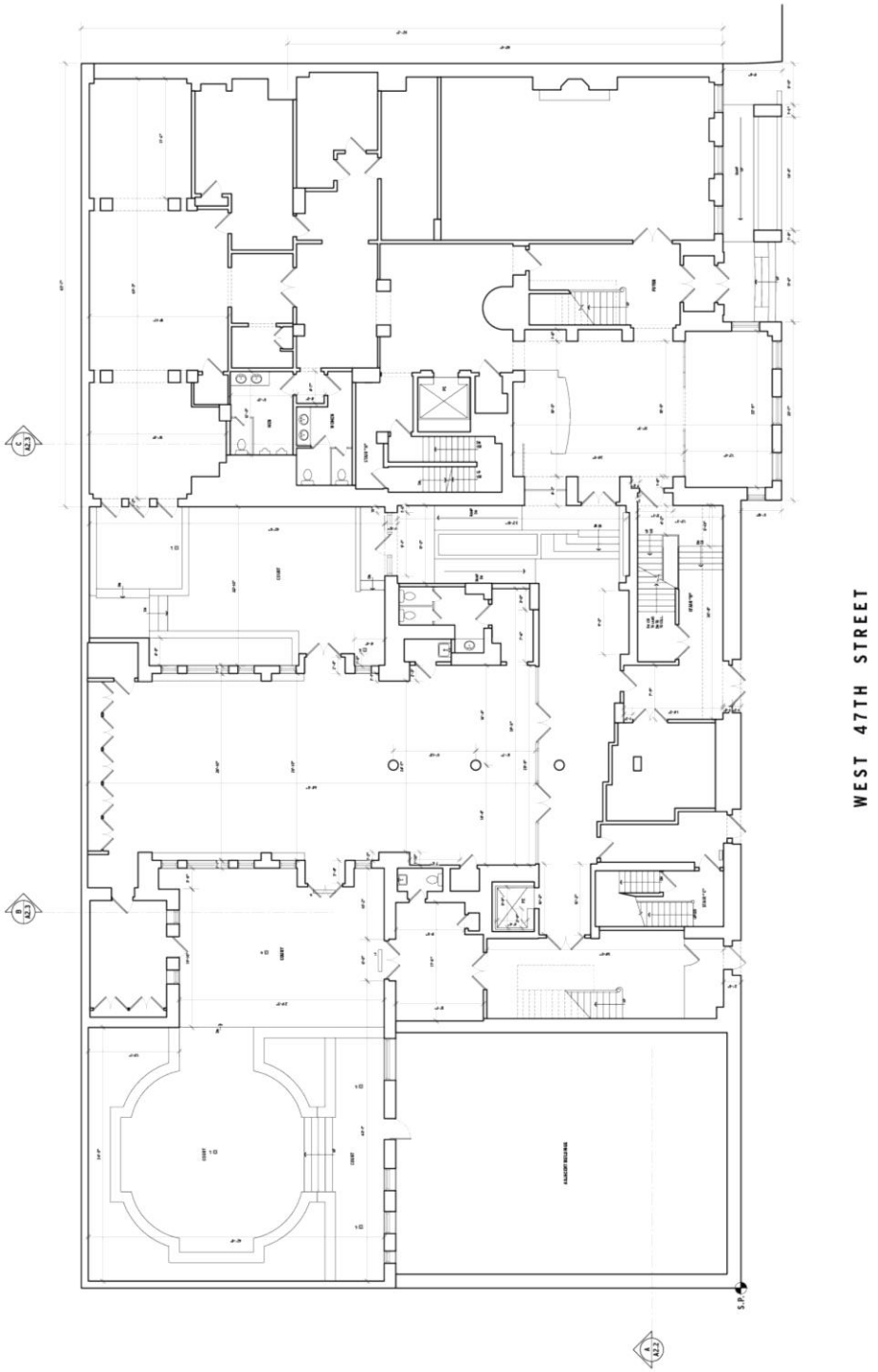
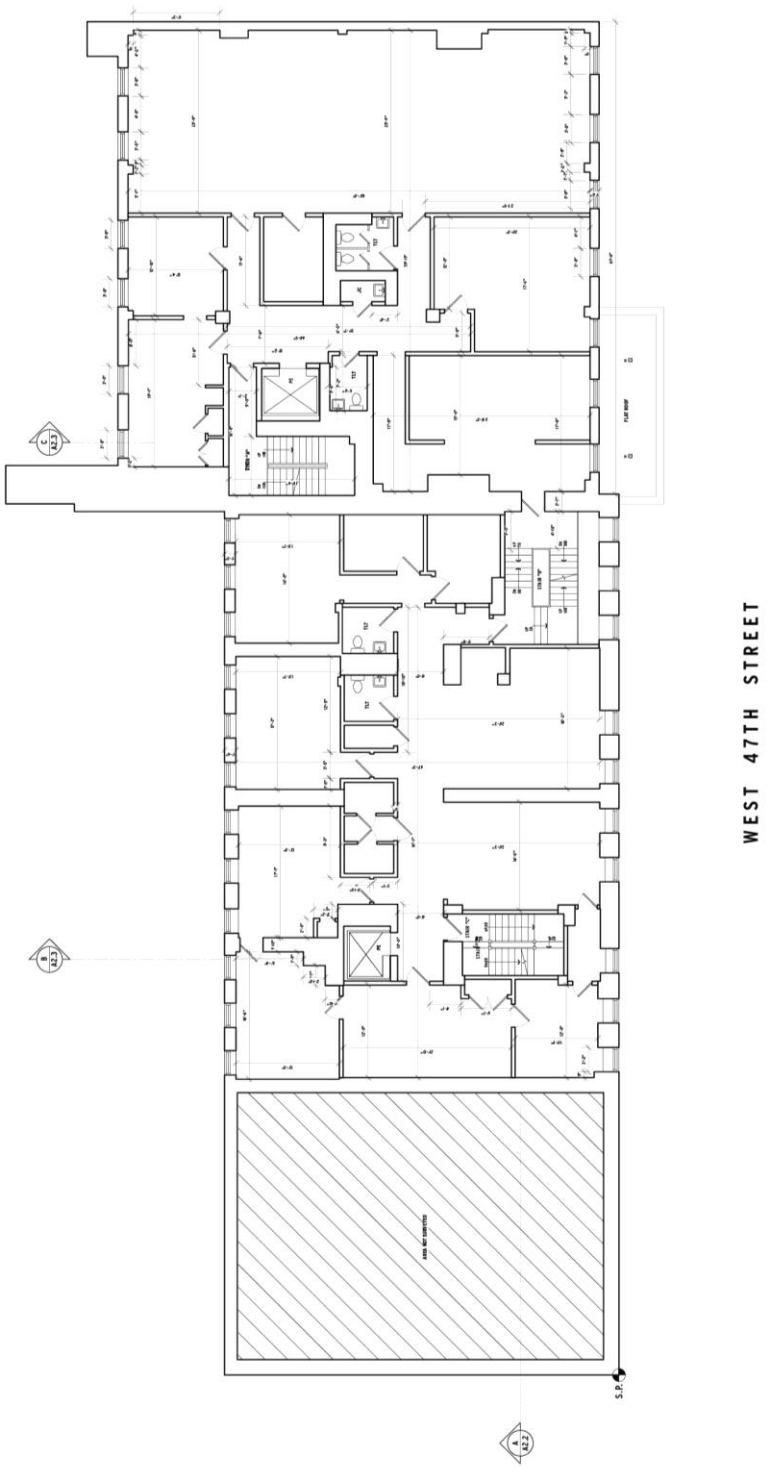
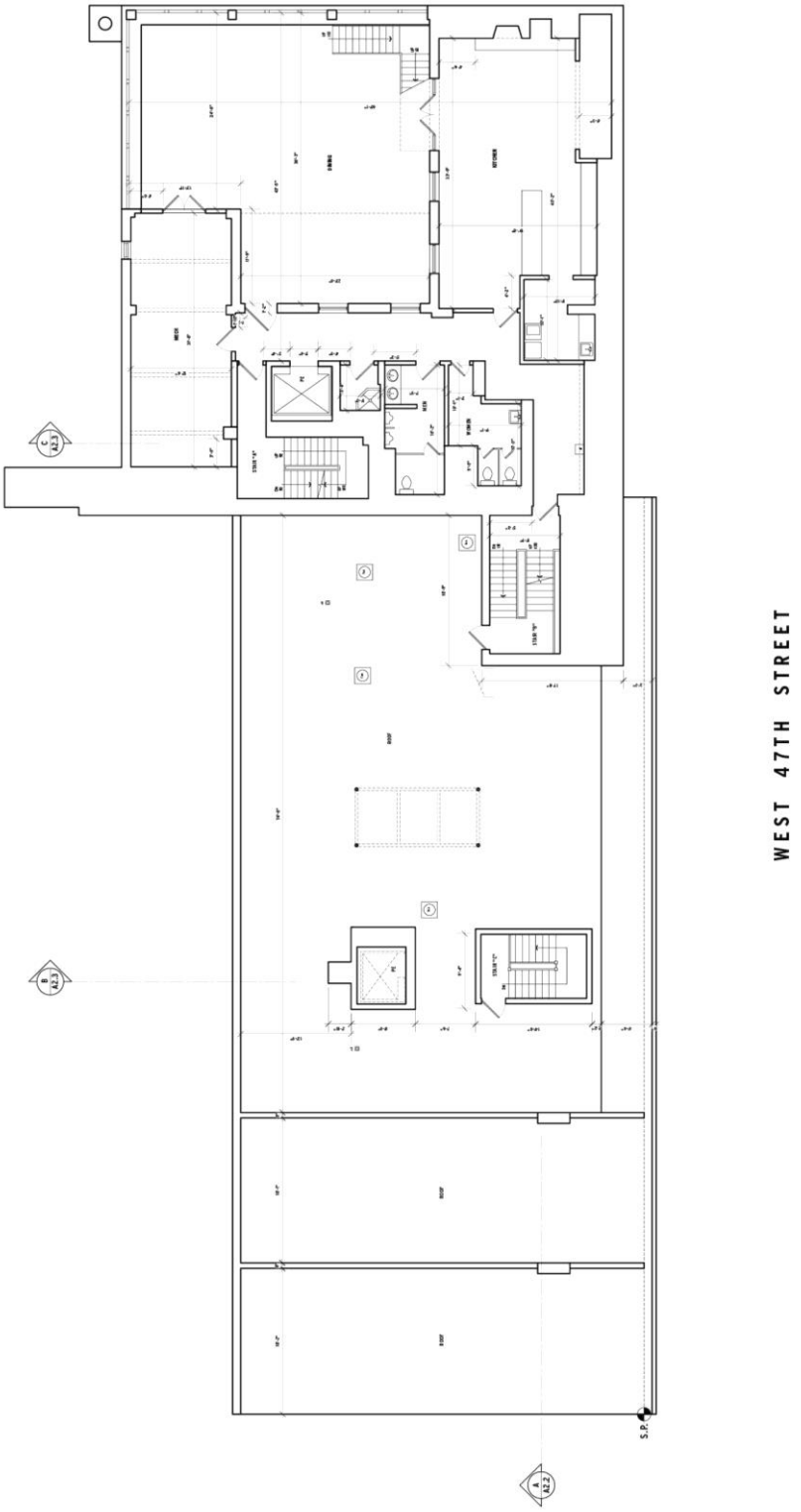
Appendix 1: Architectural documents



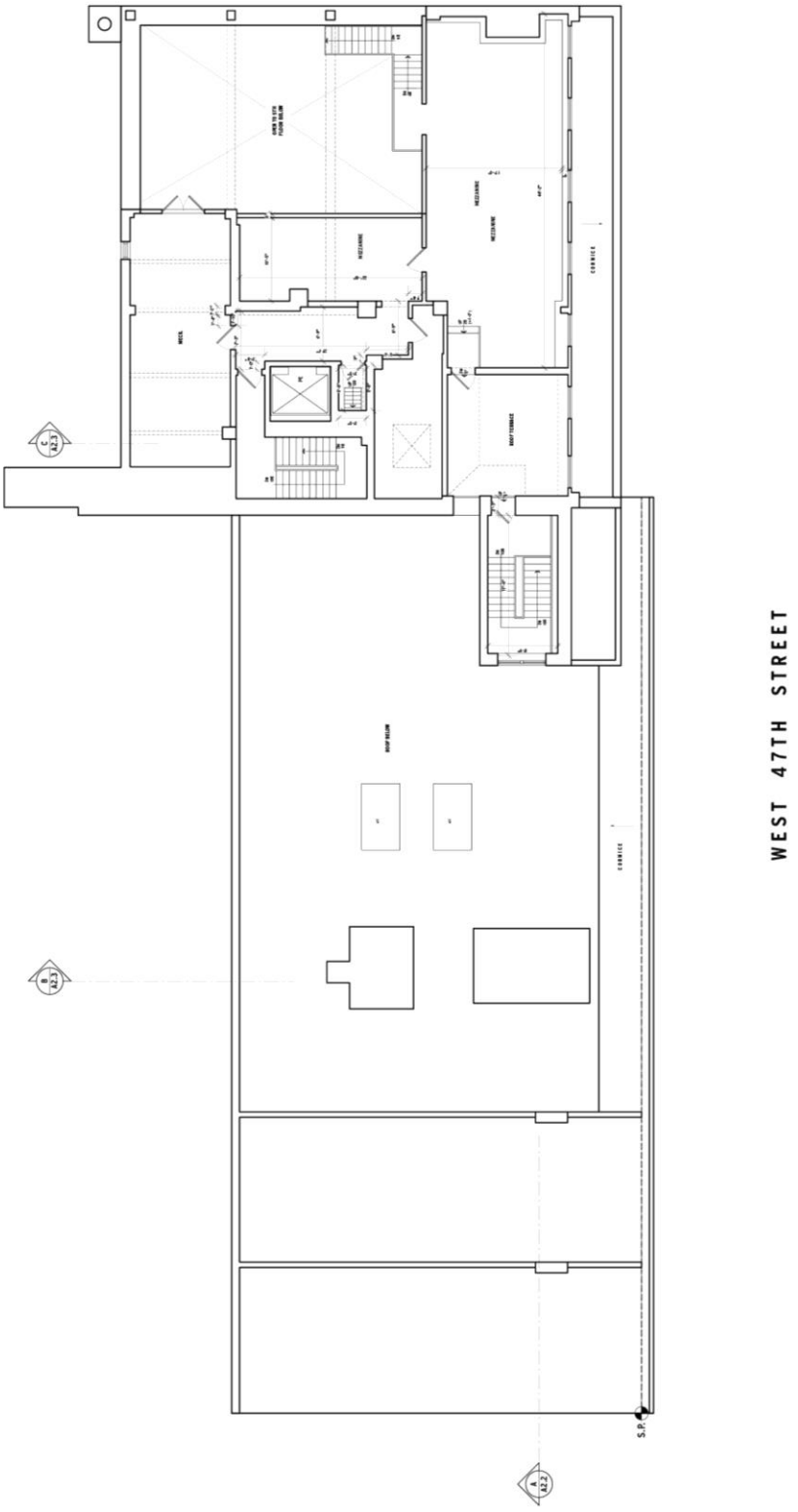
First floor architectural plan



4th floor architectural plan



5th floor architectural plan



6th floor architectural plan

Appendix 2: Survey Questionnaire

I am asking you to participate in a research study titled *"Post Occupancy Evaluation of Fountain House"*. I will describe this study to you and answer any of your questions.
This study is being led by *Kimia Erfani, Department of Design and Environmental Analysis at Cornell University. The* **Faculty Advisor for this study is** *Mardelle McCuskey Shepley, Department of Design and Environmental Analysis at Cornell University.*

What the study is about
The purpose of this research is to evaluate physical spaces of Fountain House and develop guidelines for design and construction of future clubhouse facilities.

What we will ask you to do
I will ask you to participate in a survey questionnaire. You have been asked to participate due to your familiarity with spaces within Fountain House. The majority of questions will ask you to mark the level of your agreement or disagreement about the statements. There will be no way to connect your responses [survey] or my data/observations with you. The survey will take approximately 15 minutes.

Risks and discomforts
I do not anticipate any risks from participating in this research.

Benefits
There are no direct benefits to the participants. Information from this study may benefit staff and members in Clubhouse International facilities in the future, by providing guidelines regarding suitable design of these facilities.

Compensation for participation
There is no payment for taking part in the study.

Privacy/Confidentiality/Data Security
Basic demographic information will be gathered in the survey but there will be no way to connect participants' responses [survey] or data/observations with any individual

Taking part is voluntary
Your participation is voluntary. You may refuse to participate before the study begins, discontinue at any time, or skip any questions that may make you feel uncomfortable, with no penalty to you.

If you have questions
The main researcher conducting this study is *Kimia Erfani*, a *graduate student* at Cornell University. Please ask any questions you have now. If you have questions later, you may contact *Kimia Erfani* at ke252@cornell.edu or at *217 778-6086.* If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) for Human Participants at 607-255-6182 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint online at www.hotline.cornell.edu or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

Statement of Consent

I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Returning the survey to the researcher indicates your consent for use of the answers you supply.

Researcher's Signature Kimia Erfani Date 11/13/2016

Researcher's (printed) Kimia Erfani

This consent form will be kept by the researcher for five years beyond the end of the study.

Cornell University

The purpose of this tool is to evaluate the physical environment of Fountain House. I sincerely appreciate your participation.

Fountain House Post Occupancy Evaluation

Please read each question and circle or write your response.

Part I: Basic Demographic Information:

1) Age (years): _____

2) Race / Ethnicity (please check all that apply):
_____ Hispanic or Latino
_____ Asian
_____ American Indian or Alaska Native
_____ Pacific Islander
_____ African American
_____ Caucasian
_____ Other (please describe): _____

3) Staff Only:

Length of employment in years/months: _____/_____

4) Members Only:

First year of membership: _____

Frequency of visits (please check one):
_____ Daily
_____ Weekly
_____ Monthly
_____ Yearly

5) Highest level of education achieved:
_____ 8th grade
_____ Some high school, no diploma
_____ High school graduate, diploma or the equivalent
_____ Some college credit, no degree
_____ Trade/technical/vocational training
_____ Bachelor's degree
_____ Master's degree
_____ Professional degree
_____ Doctorate degree

6) Please rate the IMPORTANCE of the following features in the physical environment of Fountain House building:

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
6.1) Attractive physical environment					
6.2) Non-institutional physical environment					
6.3) Physical environment that promotes a sense of dignity and respect					
6.4) Physical environment that facilitates social interaction					

Please continue on the next page

Part II: Design Objective 1 (attractiveness)

7) Fountain House is an attractive environment:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

8) The following spaces are attractive:

Spaces (Please see Appendix for floor plans)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.1) Wellness Unit overall	1	2	3	4	5
8.1.1) Gym	1	2	3	4	5
8.1.2) Yoga (Stretching studio)	1	2	3	4	5
8.1.3) Kitchen	1	2	3	4	5
8.1.4) Multi-purpose room	1	2	3	4	5
8.1.5) Showers and locker rooms	1	2	3	4	5
8.2) Horticulture Unit overall	1	2	3	4	5
8.2.1) Horticulture main area	1	2	3	4	5
8.2.2) Hydroponic room	1	2	3	4	5
8.2.3) Patio	1	2	3	4	5
8.3) Communications Unit overall	1	2	3	4	5
8.2.1) Communications main area	1	2	3	4	5
8.2.2) Audio visual room	1	2	3	4	5
8.2.3) Copy center	1	2	3	4	5

Part II: Design Objective 2 (non-institutional / home-like environment)

9) The physical environment of Fountain House is homelike:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

10) The physical environment of the following spaces is home-like:

Spaces (Please see Appendix for floor plans)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
10.1) Wellness Unit overall	1	2	3	4	5
10.1.1) Gym	1	2	3	4	5
10.1.2) Yoga (Stretching studio)	1	2	3	4	5
10.1.3) Kitchen	1	2	3	4	5
10.1.4) Multi-purpose room	1	2	3	4	5
10.1.5) Showers and locker rooms	1	2	3	4	5
10.2) Horticulture Unit overall	1	2	3	4	5
10.2.1) Horticulture main area	1	2	3	4	5
10.2.2) Hydroponic room	1	2	3	4	5
10.2.3) Patio	1	2	3	4	5
10.3) Communications Unit overall	1	2	3	4	5
10.2.1) Communications main area	1	2	3	4	5
10.2.2) Audio visual room	1	2	3	4	5
10.2.3) Copy center	1	2	3	4	5

Please continue on the next page

Part II: Design Objective 3 (physical environment that promotes a sense of respect and dignity)

11) Fountain House's environment promotes a sense of respect and dignity:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

12) The following spaces promote a sense of respect and dignity:

Spaces (Please see Appendix for floor plans)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
12.1) Wellness Unit overall	1	2	3	4	5
12.1.1) Gym	1	2	3	4	5
12.1.2) Yoga (Stretching studio)	1	2	3	4	5
12.1.3) Kitchen	1	2	3	4	5
12.1.4) Multi-purpose room	1	2	3	4	5
12.1.5) Showers and locker rooms	1	2	3	4	5
12.2) Horticulture Unit overall	1	2	3	4	5
12.2.1) Horticulture main area	1	2	3	4	5
12.2.2) Hydroponic room	1	2	3	4	5
12.2.3) Patio	1	2	3	4	5
12.3) Communications Unit overall	1	2	3	4	5
12.2.1) Communications main area	1	2	3	4	5
12.2.2) Audio visual room	1	2	3	4	5
12.2.3) Copy center	1	2	3	4	5

Part II: Design Objective 4 (Facilitating staff and members interaction in the physical environment)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
13) Fountain House's physical setting facilitates social interaction between staff:	1	2	3	4	5
14) Fountain House's physical setting facilitates social interaction between members:	1	2	3	4	5
15) Fountain House's physical setting facilitates social interaction between staff and members:	1	2	3	4	5

Please continue on the next page

Part II: Design Objective 4 (Facilitating staff and members interaction in the physical environment)

16) The following spaces facilitate social interaction between staff and members:

Spaces (Please see Appendix for floor plans)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
16.1) Wellness Unit	1	2	3	4	5
16.1.1) Gym	1	2	3	4	5
16.1.2) Yoga (Stretching studio)	1	2	3	4	5
16.1.3) Kitchen	1	2	3	4	5
16.1.4) Multi-purpose room	1	2	3	4	5
16.1.5) Showers and locker rooms	1	2	3	4	5
16.2) Horticulture Unit	1	2	3	4	5
16.2.1) Horticulture main area	1	2	3	4	5
16.2.2) Hydroponic room	1	2	3	4	5
16.2.3) Patio	1	2	3	4	5
16.3) Communications Unit	1	2	3	4	5
16.2.1) Communications main area	1	2	3	4	5
16.2.2) Audio visual room	1	2	3	4	5
16.2.3) Copy center	1	2	3	4	5

Part III: Please Specify the name of your unit: _____
Please answer the following questions about your unit:

17) Please choose THREE of the following features that make your unit ATTRACTIVE:	**Furniture**	**Views to outside**	**Thermal Comfort**	**Lighting**	**Color Scheme**
18) Please choose THREE of the following features that make your unit NON-INSTITUTIONAL/ HOME-LIKE:	**Furniture**	**Views to outside**	**Thermal Comfort**	**Lighting**	**Color Scheme**
19) Please choose THREE of the following features that promote a **SENSE OF RESPECT AND DIGNITY** in your unit:	**Furniture**	**Views to outside**	**Thermal Comfort**	**Lighting**	**Color Scheme**
20) Please choose THREE of the following features that facilitate **SOCIAL INTERACTION** in your unit:	**Furniture**	**Views to outside**	**Thermal Comfort**	**Lighting**	**Color Scheme**

Please continue on the next page

Part IV: Visual Assessment:

Please choose **TWO** of the following environments that are most effective in **REDUCING STRESS** and making you **FEEL REFRESHED:**

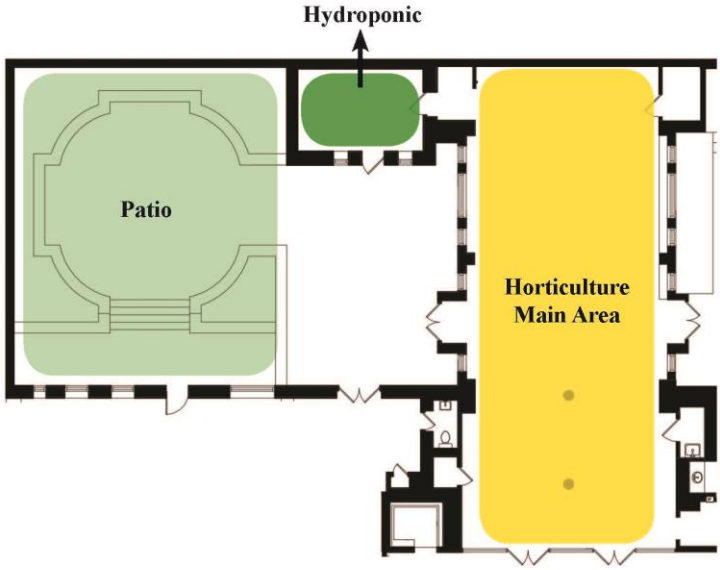
Existing Condition

Virtual LED window

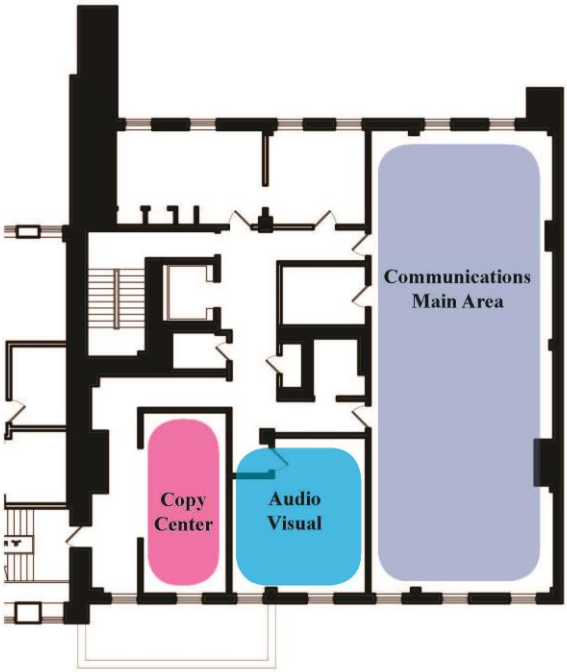
Flowerpots attached to wall

Aquarium

Appendix: Architectural Plans



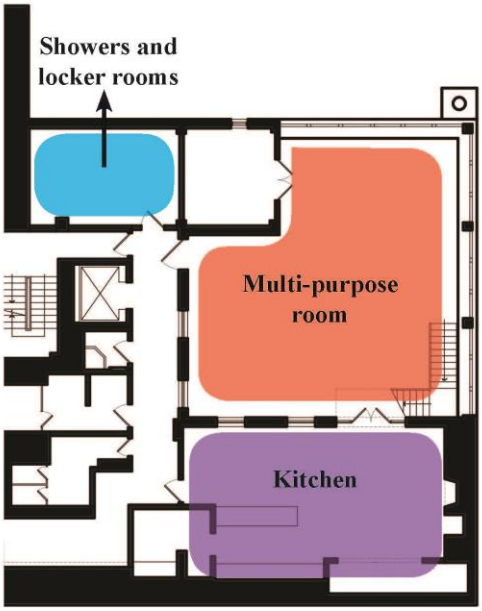
Horticulture Unit
First Floor



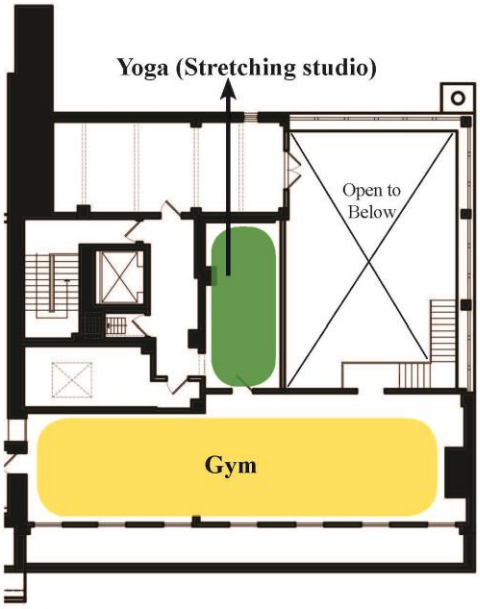
Communications Unit
Fourth Floor

6

Appendix: Architectural Plans



Wellness Unit
Fifth Floor



Wellness Unit
Sixth Floor

Appendix 3: Behavioral Observation Chart

Date:	Observe time:		Male	Female	<40 years old	>40 years old	
Verbal Behavior		**Visual Behavior**			**Body Behavior**		
Conversation	Null	Observing	Seeking another individual	Seeking unknown	Null	Sitting or standing by members or staff	Sitting or standing besides each other with physical contact	Walk in a group (2 or more)	Null

Date:	Observe time:		Male	Female	<40 years old	>40 years old	
Verbal Behavior		**Visual Behavior**			**Body Behavior**		
Conversation	Null	Observing	Seeking another individual	Seeking unknown	Null	Sitting or standing by members or staff	Sitting or standing besides each other with physical contact	Walk in a group (2 or more)	Null

Date:	Observe time:		Male	Female	<40 years old	>40 years old	
Verbal Behavior		**Visual Behavior**			**Body Behavior**		
Conversation	Null	Observing	Seeking another individual	Seeking unknown	Null	Sitting or standing by members or staff	Sitting or standing besides each other with physical contact	Walk in a group (2 or more)	Null